

# Exhibit 6

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## UNITED STATES DISTRICT COURT

## DISTRICT OF NEW JERSEY

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IN RE JOHNSON & JOHNSON ) MDL No.  
TALCUM POWDER PRODUCTS ) 16-2738 (FLW)(LHG)  
MARKETING SALES PRACTICES, )  
AND PRODUCTS LIABILITY )  
LITIGATION )  
 )  
THIS DOCUMENT RELATES TO )  
ALL CASES )

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## VIDEOTAPED DEPOSITION OF

LAURA WEBB, Ph.D.

BURLINGTON, VERMONT

FRIDAY, MARCH 29, 2019

9:28 A.M.

Reported by: Leslie A. Todd

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<p>1 Deposition of LAURA WEBB, Ph.D., held at the:</p> <p>2</p> <p>3</p> <p>4 HOTEL VERMONT</p> <p>5 41 Cherry Street</p> <p>6 Burlington, Vermont 05401</p> <p>7 (802) 651-0080</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14 Pursuant to notice, before Leslie Anne Todd,</p> <p>15 Court Reporter and Notary Public, who officiated</p> <p>16 in administering the oath to the witness.</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p>1 APPEARANCES (Continued):</p> <p>2</p> <p>3 ON BEHALF OF THE JOHNSON &amp; JOHNSON DEFENDANTS:</p> <p>4 JACK N. FROST, JR., ESQUIRE</p> <p>5 KATHERINE McBETH, ESQUIRE</p> <p>6 DRINKER BIDDLE &amp; REATH LLP</p> <p>7 One Logan Square</p> <p>8 Suite 2000</p> <p>9 Philadelphia, Pennsylvania 19103-6996</p> <p>10 (215) 988-2706</p> <p>11</p> <p>12 ALEX V. CHACHKES, ESQUIRE</p> <p>13 ORRICK, HERRINGTON &amp; SUTCLIFFE LLP</p> <p>14 51 West 52nd Street</p> <p>15 New York, New York 10019-6142</p> <p>16 (212) 506-3748</p> <p>17</p> <p>18 ON BEHALF OF THE PCPC:</p> <p>19 JAMES R. BILLINGS-KANG, ESQUIRE</p> <p>20 SEYFARTH SHAW LLP</p> <p>21 975 F Street, N.W.</p> <p>22 Washington, D.C. 20004-1454</p> <p>23 (202) 463-2400</p> <p>24</p> <p>25</p>
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<p style="text-align: right;">Page 11</p> <p>1 PROCEEDINGS</p> <p>2 -----</p> <p>3 THE VIDEOGRAPHER: We're now on the</p> <p>4 record. My name is David Lane, videographer for</p> <p>5 Golkow Litigation Services. Today's date is</p> <p>6 March 29th, 2019. Our time is 9:28 a.m.</p> <p>7 This deposition is taking place in</p> <p>8 Burlington, Vermont, in the matter of Talcum</p> <p>9 Powder Litigation MDL.</p> <p>10 Our deponent today is Laura Webb, Ph.D.</p> <p>11 Counsel will be noted on the</p> <p>12 stenographic record.</p> <p>13 Our court reporter today is Leslie Todd,</p> <p>14 who will now swear in the witness.</p> <p>15 LAURA WEBB, Ph.D.,</p> <p>16 and having been first duly sworn,</p> <p>17 was examined and testified as follows:</p> <p>18 THE VIDEOGRAPHER: You can begin.</p> <p>19 MR. BURNS: You want appearances on the</p> <p>20 record or --</p> <p>21 THE VIDEOGRAPHER: You can just begin.</p> <p>22 MR. BURNS: Okay. Thank you.</p> <p>23 Dr. Webb, before we get started -- and,</p> <p>24 Mr. Frost, this is directed to all -- we're going</p> <p>25 to lodge an objection on the record related to the</p>	<p style="text-align: right;">Page 13</p> <p>1 DIRECT EXAMINATION</p> <p>2 BY MR. BURNS:</p> <p>3 Q Good morning, Dr. Webb. My name is</p> <p>4 Warren Burns. Again, we met right before the</p> <p>5 deposition. I represent the plaintiffs in the</p> <p>6 MDL. I'm from Dallas, Texas, and I will be</p> <p>7 questioning you today.</p> <p>8 Dr. Webb, have you ever been deposed</p> <p>9 before?</p> <p>10 A I have not.</p> <p>11 Q Okay. A couple of simple rules for the</p> <p>12 road then. If you need a break, I'm more than</p> <p>13 willing to let you take one at any time. I only</p> <p>14 ask that if a question is pending, we get that out</p> <p>15 of the way, get the answer on the record, and then</p> <p>16 you're more than welcome to go. So just let us</p> <p>17 know if that's the case.</p> <p>18 If at any time I am unclear, which</p> <p>19 certainly will happen probably multiple times over</p> <p>20 the course of this day, please let me know. I'm</p> <p>21 happy to clarify anything I say.</p> <p>22 You are obviously an expert in many</p> <p>23 things, and the -- of which I am less familiar.</p> <p>24 So if I am unclear, please let me know, and we</p> <p>25 will try to get on through it.</p>

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<p>1 What did you do to prepare for your</p> <p>2 deposition?</p> <p>3 A Well, I met with counsel. I reviewed</p> <p>4 the reports, including my own. I reviewed the</p> <p>5 body of literature that I've been looking at.</p> <p>6 Q Okay. Now, when did you meet with</p> <p>7 counsel?</p> <p>8 A Multiple times.</p> <p>9 Q Do you recall the dates?</p> <p>10 A I -- well, yesterday and last Friday as</p> <p>11 well.</p> <p>12 Q Were those meetings here in Burlington,</p> <p>13 Vermont?</p> <p>14 A They were.</p> <p>15 Q How many lawyers were present?</p> <p>16 A Yesterday, two, and last Friday, three.</p> <p>17 Q Do you recall any other meetings?</p> <p>18 A Yes, there were prior meetings. I just</p> <p>19 don't remember the dates offhand.</p> <p>20 Q Okay. Approximately how many prior</p> <p>21 meetings would you say?</p> <p>22 A Two to three.</p> <p>23 Q Okay. Now, during the course of your</p> <p>24 preparation for this deposition, were you shown</p> <p>25 any documents that refreshed your recollection?</p>	<p>1 BY MR. BURNS:</p> <p>2 Q Exhibit 2 is the -- Exhibit 2 is the</p> <p>3 Notice of Oral and Videotaped Deposition of Laura</p> <p>4 Webb, Ph.D. and Duces Tecum.</p> <p>5 And Exhibit 3 is Defendants' Response to</p> <p>6 Plaintiffs' Document Request contained in Notice</p> <p>7 of Oral and Videotaped Deposition of Laura Webb,</p> <p>8 Ph.D. and Duces Tecum.</p> <p>9 There you go, Dr. Webb.</p> <p>10 A (Peruses document.)</p> <p>11 Q Ready, Dr. Webb?</p> <p>12 A Yes.</p> <p>13 Q Okay, great.</p> <p>14 So let's start with Exhibit 2. This is</p> <p>15 the Notice of Oral and Videotaped Deposition of</p> <p>16 Laura Webb, Ph.D. and Duces Tecum. It's dated</p> <p>17 March 14th, 2019.</p> <p>18 Do you recognize this document?</p> <p>19 A I do not, no.</p> <p>20 Q You don't recall seeing it before?</p> <p>21 A (Witness shakes head.)</p> <p>22 Q But you are appearing today to give</p> <p>23 testimony with respect to a report you previously</p> <p>24 issued; is that correct?</p> <p>25 A That's correct.</p>
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<p>1 A I was not shown any documents.</p> <p>2 Q Now, Dr. Webb, I'm going to mark this as</p> <p>3 Plaintiffs' Demonstrative No. 1. It's nothing too</p> <p>4 serious, just a little roadmap for us as we go</p> <p>5 through the day today.</p> <p>6 I intend to cover approximately four</p> <p>7 issues with you as we go through today, and we'll</p> <p>8 check them off as we get through them all.</p> <p>9 The first is your response to the notice</p> <p>10 of deposition and subpoena that you received prior</p> <p>11 to the deposition.</p> <p>12 The second involves your qualifications</p> <p>13 which underpin your testimony and report. I want</p> <p>14 to make sure I spell that right.</p> <p>15 The third involves your preparation to</p> <p>16 render your opinions.</p> <p>17 And the fourth is your report and</p> <p>18 opinions.</p> <p>19 So I want to start with actually the</p> <p>20 subpoena. I'm going to hand you a few documents</p> <p>21 that we have premarked. First will be Exhibit 1,</p> <p>22 your report, or what I believe is your report.</p> <p>23 (Webb Exhibit Nos. 1 through 3</p> <p>24 were premarked for</p> <p>25 identification.)</p>	<p>1 Q And is that report reflected in</p> <p>2 Exhibit 1, Expert Report of Laura Webb, Ph.D., for</p> <p>3 General Causation Daubert Hearing?</p> <p>4 A That appears to be the very report, yes.</p> <p>5 Q Okay. Thank you.</p> <p>6 Now, I would like you to look at</p> <p>7 Exhibit 3, Dr. Webb. That's Defendants' Response</p> <p>8 to Plaintiffs' Document Request contained in</p> <p>9 Notice of Oral and Videotaped Deposition of Laura</p> <p>10 Webb, Ph.D. and Duces Tecum.</p> <p>11 Do you see that?</p> <p>12 A Yes.</p> <p>13 Q Okay. Are you familiar with this</p> <p>14 document?</p> <p>15 A No, I'm not.</p> <p>16 Q Okay. You don't recall seeing it</p> <p>17 before?</p> <p>18 A No. I saw the notice of deposition, but</p> <p>19 I have not seen this.</p> <p>20 Q Okay. Before coming to the deposition</p> <p>21 today, did you search your files for any relevant</p> <p>22 documents?</p> <p>23 A Before -- sorry. What time frame are we</p> <p>24 talking about?</p> <p>25 Q Well, let me ask a different question</p>

<p style="text-align: right;">Page 18</p> <p>1 then.</p> <p>2 Prior to your deposition today, were you</p> <p>3 informed that plaintiffs were seeking documents</p> <p>4 from you at the time of this deposition?</p> <p>5 A I knew there -- I mean, I know there are</p> <p>6 documents requested in the notice of deposition,</p> <p>7 and counsel is responsible or, you know, responded</p> <p>8 to those. But that's --</p> <p>9 Q I see. But did you -- were you</p> <p>10 personally informed that you needed to look for</p> <p>11 documents that were responsive to your requests</p> <p>12 from the plaintiffs prior to your deposition?</p> <p>13 A I -- I provided everything that is in my</p> <p>14 reliance, but in terms of in the last few days</p> <p>15 being charged with searching my -- my records, no.</p> <p>16 Q That's right. And we're really talking</p> <p>17 about that period between March 14th of this year,</p> <p>18 2019, and the present.</p> <p>19 So you don't recall being asked to</p> <p>20 search for additional documents during that</p> <p>21 period?</p> <p>22 A I was asked to make sure that my</p> <p>23 reliance list was complete.</p> <p>24 Q Okay. And do you recall when you were</p> <p>25 so instructed?</p>	<p style="text-align: right;">Page 20</p> <p>1 A Excuse me.</p> <p>2 MS. O'DELL: The 26th -- 25th.</p> <p>3 MR. BURNS: It's the 25th. Okay.</p> <p>4 Oh, you're right. It's the 30th -- or</p> <p>5 29th today. I apologize.</p> <p>6 BY MR. BURNS:</p> <p>7 Q Okay. So you prepared this document on</p> <p>8 Monday, March 25th, and the document contains 11</p> <p>9 supplemental materials that you reviewed; is that</p> <p>10 right?</p> <p>11 A Yes.</p> <p>12 Q Okay. And the first five appear to be</p> <p>13 maps; is that right?</p> <p>14 A Yes.</p> <p>15 Q Okay.</p> <p>16 A Or maps and reports in some cases, yes.</p> <p>17 Q Okay. Can you tell me which ones also</p> <p>18 represent reports?</p> <p>19 A Number 1, 3, and I believe number 5.</p> <p>20 Number 4, I'm not sure about.</p> <p>21 Q And just so I understand, because</p> <p>22 there's a little bit of confusion on our side,</p> <p>23 when you listed these materials, and 1, 3 and 5</p> <p>24 contain reports --</p> <p>25 A Mm-hmm.</p>
<p style="text-align: right;">Page 19</p> <p>1 A Oh, I believe we talked about that last</p> <p>2 Friday.</p> <p>3 Q Now, again, staying with Exhibit No. 3,</p> <p>4 Dr. Webb, the first -- let's see -- the first 19</p> <p>5 pages contains quite a bit of legal -- legal</p> <p>6 mumbo-jumbo that you're probably not too</p> <p>7 interested in that we may or may not fight about</p> <p>8 down the road with your lawyers.</p> <p>9 But after that, the next page is titled</p> <p>10 Expert Report of Laura Webb, Ph.D. for General</p> <p>11 Causation Daubert Hearing, Supplemental List of</p> <p>12 Materials Reviewed.</p> <p>13 Do you see that?</p> <p>14 A Yes.</p> <p>15 Q Okay. Is this a document you prepared?</p> <p>16 A It is. I provided that list.</p> <p>17 Q Okay. And you provided it to counsel?</p> <p>18 A Yes.</p> <p>19 Q Okay. Do you recall when you prepared</p> <p>20 this list?</p> <p>21 A On Monday.</p> <p>22 Q Okay. That would be Monday, March 15th?</p> <p>23 A This past Monday, the 20 -- whatever.</p> <p>24 Yeah.</p> <p>25 Q Maybe 16th.</p>	<p style="text-align: right;">Page 21</p> <p>1 Q -- is there any way we can figure that</p> <p>2 out from the -- from the -- from your citation?</p> <p>3 The citation appears to contain the title of the</p> <p>4 maps, but does that correspond to the articles as</p> <p>5 well?</p> <p>6 A I mean, these are USGS report --</p> <p>7 reports, open file reports. In some cases they're</p> <p>8 maps in a numbered series. So the general</p> <p>9 citations don't necessarily, yes, reveal that.</p> <p>10 Q Okay. Now, the next item is "Zodac, P.,</p> <p>11 1940, A Talc Quarry Near Chester, Vermont."</p> <p>12 Is that an article that you reviewed?</p> <p>13 A Yes.</p> <p>14 Q And item 7, Deposition of Ann G. Wylie.</p> <p>15 Is that a deposition transcript?</p> <p>16 A Yes.</p> <p>17 Q And next one is Expert Report of Ann G.</p> <p>18 Wylie. Did you have access to the entire report?</p> <p>19 A I did.</p> <p>20 Q And the supporting materials?</p> <p>21 A Can you define "supporting materials"?</p> <p>22 Q Yeah, the documents that would have been</p> <p>23 cited as the list of materials reviewed or relied</p> <p>24 on.</p> <p>25 A I only read the expert report, so I</p>



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1 didn't -- there may have been some common  
 2 materials cited, but I did not dig into those, so  
 3 to speak.  
 4 Q Okay. The next one is Deposition of  
 5 Mary Poulton, and that's a deposition transcript?  
 6 A Yes.  
 7 Q Next is Expert Report of Mary Poulton.  
 8 Did you read the entire report?  
 9 A I -- I read good portions of it. I  
 10 think there were some areas that I skimmed.  
 11 Q Did you have access to the whole report?  
 12 A I did, yes.  
 13 Q And did you review the materials  
 14 reviewed or relied upon?  
 15 A No.  
 16 Q Next one is expert report of Darby Dyar.  
 17 Did you have access to the full report?  
 18 A I did, yes.  
 19 Q And did you review that full report?  
 20 A I did. Again, portions -- some portions  
 21 I read in more detail than others, but I did see  
 22 the full report.  
 23 Q And did you review the materials  
 24 reviewed or relied upon?  
 25 A No.

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1 Q Okay. In Exhibit 3, Dr. Webb, if you go  
 2 down, if you go to the end of the exhibit, there  
 3 appear to be five maps or graphical  
 4 representations that are part of these materials.  
 5 A Yes.  
 6 Q Okay. This may be a little difficult,  
 7 but if we could stay with your supplemental list  
 8 of materials reviewed. Can you tell me how these  
 9 maps correspond, if at all, to those supplemental  
 10 materials?  
 11 A Well, the -- the geologic map --  
 12 Q Now, we're looking there at the map that  
 13 says "Google Earth Image, U.S. Geographical  
 14 Survey"?  
 15 A Yes. So there are basically two map  
 16 backdrops. There's the one that is much more  
 17 complicated looking, and that is the Vermont State  
 18 Bedrock map by Ratcliffe, et al., 2011.  
 19 Q Is that the first map in the material?  
 20 A Yes. And then the second one is the  
 21 metamorphism tile from Doll, et al., 1961.  
 22 Q And if I can just pause you there.  
 23 You said the first map was from  
 24 Ratcliffe, and what was the date on that?  
 25 A 2011.

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1 Q 2011. Okay. Now, that isn't listed in  
 2 your supplement materials, is it?  
 3 A No. It's cited in my report.  
 4 Q Okay. And now, if you wouldn't mind  
 5 proceeding to that second map.  
 6 A Yes.  
 7 Q Okay. And how does this correspond, if  
 8 at all, to your supplemental materials?  
 9 A It does not.  
 10 Q Okay.  
 11 A I mean, I will make -- so the link  
 12 between the supplemental materials and these maps  
 13 are the -- the pushpins that mark the locations of  
 14 certain mines or geologic bodies, for example. So  
 15 when I first put this together, this is a Google  
 16 Earth compilation. In terms of locating these  
 17 bodies, in some cases on this Ratcliffe, et al.,  
 18 2011 map, I also compared with maps, these more  
 19 detailed quadrangle maps.  
 20 Q Okay. And when you refer to the more  
 21 detailed quadrangle maps, you're referring to  
 22 those that are listed in your supplemental  
 23 materials?  
 24 A Yeah. So it was in providing this that  
 25 I recalled I had looked at these many months ago

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1 when I was determining locations, and that's  
 2 why -- I haven't looked at them recently. This is  
 3 why they were added as a supplement.  
 4 Q I see. Okay. So the second map we were  
 5 looking in -- looking at, another Google Earth  
 6 map, is this map cited in your report as well?  
 7 A Yes, it is. It's Doll, et al., 1961.  
 8 Q Now, let's turn to the third map. A lot  
 9 going on in this one.  
 10 A Yes. This is a -- I zoomed in on the  
 11 Chester dome area. So it's the same background  
 12 map as the first one.  
 13 I'm sorry, I cut you off there.  
 14 Q No, that's fine.  
 15 Okay. So the third map is a zoomed-in  
 16 version of the first map focusing on the Chester  
 17 dome.  
 18 A That's correct.  
 19 Q Is that right?  
 20 A Yes.  
 21 Q And that is Ratcliffe, 2011?  
 22 A Yes.  
 23 Q Now, the fourth map, what are we looking  
 24 at here?  
 25 A That's the zoomed-in version of the

7 (Pages 22 to 25)



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<p>1 Doll, 1961 map. So my -- yeah, generally I was</p> <p>2 trying to show the detail that you can't see in</p> <p>3 the first two.</p> <p>4 Q Okay. And how do you -- is it D-A-L-L?</p> <p>5 A I'm sorry?</p> <p>6 Q Is Doll D-A-L-L?</p> <p>7 A D-O-L-L.</p> <p>8 Q D-O-L-L. Okay.</p> <p>9 All right. And that leaves us with I</p> <p>10 believe one map. The fifth map, what is -- what</p> <p>11 are we looking at here?</p> <p>12 A That's zoomed in further at the northern</p> <p>13 end of the Chester dome.</p> <p>14 Q From the 2011?</p> <p>15 A 2000 -- Ratcliffe, 2011, yes. Sorry,</p> <p>16 Ratcliffe, et al.</p> <p>17 Q Okay. And this is the northern end of</p> <p>18 the Chester dome?</p> <p>19 A Yes.</p> <p>20 Q Okay. Let's start with -- I guess</p> <p>21 really the Ratcliffe map that's reflected in maps</p> <p>22 1, 3, I think, and 5; is that right?</p> <p>23 A Yes.</p> <p>24 Q Okay. When did you prepare this map?</p> <p>25 A Well, I began compiling this information</p>	<p>1 the northern end of the Chester dome. Then --</p> <p>2 sorry, so again some things didn't show up well at</p> <p>3 this -- at this area. So Argonaut would be near</p> <p>4 the Rainbow and Frostbite mines, and then Hamm</p> <p>5 mine is further down.</p> <p>6 Q And these pushpins carry over then to</p> <p>7 your zoomed versions?</p> <p>8 A They do, yes.</p> <p>9 Q Okay. And if you look at that map</p> <p>10 number 3, Argonaut mine, for example, there's</p> <p>11 pushpins somewhere sort of in the upper middle of</p> <p>12 the page; is that right?</p> <p>13 A Yes.</p> <p>14 Q What was your purpose in compiling this</p> <p>15 information and creating this map?</p> <p>16 A Well, it's critical to understand the</p> <p>17 location of the mines with respect to the</p> <p>18 distribution of -- of geologic units, and in</p> <p>19 particular -- of particular interest is also the</p> <p>20 metamorphic grades of these rocks, which is why</p> <p>21 the Doll map is -- is used. Because the geology</p> <p>22 is actually very complex. There's -- I mean,</p> <p>23 three collisional orogenies that -- that give rise</p> <p>24 to the overall structure of -- of geologic units</p> <p>25 here.</p>
Page 27	Page 29
<p>1 really when I was first retained by Shook Hardy &amp;</p> <p>2 Bacon.</p> <p>3 Q And was that in 2017?</p> <p>4 A That's correct.</p> <p>5 Q When you say you began compiling this</p> <p>6 information, what do you mean?</p> <p>7 A I mean by determining the exact</p> <p>8 locations of -- of different geologic bodies on</p> <p>9 this backdrop of the -- the bedrock map of Vermont</p> <p>10 and the metamorphism tile.</p> <p>11 Q Can you give us an example in this first</p> <p>12 map, the Ratcliffe, 2011 -- Ratcliffe, et al.,</p> <p>13 2011, of the type of specific information you were</p> <p>14 trying to show on this map?</p> <p>15 A Yeah. So, again, for example, the</p> <p>16 Ludlow area mines, I was trying to determine the</p> <p>17 exact location of -- of those mines with regard to</p> <p>18 the geology.</p> <p>19 Q Okay. And can you tell me where those</p> <p>20 are reflected on this map? I see, on your</p> <p>21 pushpins; is that right?</p> <p>22 A Yes, yes.</p> <p>23 Q Okay.</p> <p>24 A So you see there's -- maybe two-thirds</p> <p>25 down the page almost, the Hammondsville quarry,</p>	<p>1 And so there are pretty dramatic changes</p> <p>2 and grades of metamorphism over short distances,</p> <p>3 and I had to understand exactly where the mines</p> <p>4 were with regard to the metamorphic histories</p> <p>5 recorded by the rock units.</p> <p>6 Q So how would you manipulate these maps</p> <p>7 to assist you in -- in coming to that</p> <p>8 understanding?</p> <p>9 A I wouldn't manipulate them. I would</p> <p>10 just refer to them.</p> <p>11 Q Okay. And perhaps that's the wrong</p> <p>12 term, but I assume you mean -- you're probably not</p> <p>13 looking at map number 1, but you're looking and</p> <p>14 trying to zoom in at times on maps 3 and 5 to get</p> <p>15 a better sense of the surrounding geology. Is</p> <p>16 that fair or --</p> <p>17 A As a geologist, I'm always moving in and</p> <p>18 out of scales, from thinking about the whole state</p> <p>19 of Vermont scale to, again, the micron scale and</p> <p>20 samples. So, yes, moving in and out of zoom</p> <p>21 ranges is part and parcel.</p> <p>22 Q Sure. Is it important then in addition</p> <p>23 to having sort of general maps or larger scale</p> <p>24 maps to have those much more finite and detailed</p> <p>25 maps of particular regions or areas?</p>

<p style="text-align: right;">Page 30</p> <p>1 MR. FROST: Objection to form.</p> <p>2 THE WITNESS: Yes, I found I was</p> <p>3 referring to those in detail because some</p> <p>4 bodies -- the level of detail shown in maps is a</p> <p>5 function of the scale of the map itself. So the</p> <p>6 1:24,000 quadrangle maps show some finer scale</p> <p>7 details than the Ratcliffe map, but this was the</p> <p>8 best map available, the most up to date, and the</p> <p>9 best one for the -- the compilation of the data.</p> <p>10 BY MR. BURNS:</p> <p>11 Q And when you refer to the compilation of</p> <p>12 the data, do you mean plotting these multiple</p> <p>13 points, multiple mine sites on a single map?</p> <p>14 A I mean, that's part of it again. It's,</p> <p>15 again, understanding the -- the system, the</p> <p>16 geologic system, the distribution of the rocks and</p> <p>17 the rock types and those geologic structures such</p> <p>18 as faults.</p> <p>19 Q But if you were wanting to look at a</p> <p>20 particular -- a particular mine site -- for</p> <p>21 example, let's say the Argonaut mine or the</p> <p>22 Johnson mine -- you wouldn't want to start -- stop</p> <p>23 at map number 1 or even map number 3 or 5.</p> <p>24 Would you want to get as much detail as</p> <p>25 possible and as much of the minute scale as</p>	<p style="text-align: right;">Page 32</p> <p>1 ultimately wanted to opine on whether there was a</p> <p>2 potential for asbestos contamination in talc</p> <p>3 deposits in that mine, is it fair to say that you</p> <p>4 would want to drill down on the most finite or</p> <p>5 specific information, including maps on the</p> <p>6 Argonaut mine, before you made that opinion?</p> <p>7 MR. FROST: Objection to form.</p> <p>8 THE WITNESS: I mean, maps are part of</p> <p>9 it, but I was really looking at a much broader</p> <p>10 range of petrological information.</p> <p>11 BY MR. BURNS:</p> <p>12 Q So is the answer then that you would not</p> <p>13 want that fine level of detail?</p> <p>14 MR. FROST: Objection to form.</p> <p>15 THE WITNESS: I mean, the answer is it</p> <p>16 depends. I mean, we're kind of -- I think I would</p> <p>17 need more specific -- more specific questions in</p> <p>18 order to give you a more specific answer. Sorry.</p> <p>19 BY MR. BURNS:</p> <p>20 Q Well, for example, if there was a</p> <p>21 geologic map of the Argonaut mine available, would</p> <p>22 you want to see that?</p> <p>23 A I guess, yeah, if there was good data</p> <p>24 and -- and context there. But I actually, you</p> <p>25 know, felt that I had the information I -- I</p>
<p style="text-align: right;">Page 31</p> <p>1 possible when you were considering the geology of</p> <p>2 the area?</p> <p>3 MR. FROST: Objection to form.</p> <p>4 THE WITNESS: Yeah, well, I mean it</p> <p>5 depends on where the outstanding questions are,</p> <p>6 where you're driven to, in that sense.</p> <p>7 BY MR. BURNS:</p> <p>8 Q Okay. Well, if the question --</p> <p>9 outstanding questions were, as they are in this</p> <p>10 case, say, proximity of a talc deposit to</p> <p>11 potential asbestos, amphibole or other materials,</p> <p>12 would you want that higher scale, more minute</p> <p>13 scale?</p> <p>14 MR. FROST: Objection to form.</p> <p>15 THE WITNESS: Again, I mean, you know,</p> <p>16 what I'm driven to search for is a product of what</p> <p>17 I'm -- I'm finding, and so -- and also what --</p> <p>18 what actually exists.</p> <p>19 BY MR. BURNS:</p> <p>20 Q Well, and maybe I can be clearer, and I</p> <p>21 apologize if I'm not.</p> <p>22 But as a scientist of your experience,</p> <p>23 and clearly you have published a lot and have</p> <p>24 significant length of time in this field, but if</p> <p>25 you were looking at, say, the Argonaut mine and</p>	<p style="text-align: right;">Page 33</p> <p>1 needed based on the -- the resources that I looked</p> <p>2 at to have what I think is a very good</p> <p>3 understanding of the -- the petrology.</p> <p>4 Q As a scientist, is it fair to say that</p> <p>5 more information is better than less information?</p> <p>6 MR. FROST: Objection to form.</p> <p>7 THE WITNESS: It depends. It depends on</p> <p>8 the quality of the information.</p> <p>9 BY MR. BURNS:</p> <p>10 Q Assuming that the quality is good, is it</p> <p>11 fair to make that assumption?</p> <p>12 MR. FROST: Objection to form.</p> <p>13 THE WITNESS: I guess, yeah, we -- yeah,</p> <p>14 information is good if there's -- if you're able</p> <p>15 to evaluate the -- the real data and the -- the</p> <p>16 methodology.</p> <p>17 BY MR. BURNS:</p> <p>18 Q Would it be important for you to</p> <p>19 actually review data or maps that were prepared</p> <p>20 by, for instance, a company actually operating the</p> <p>21 mine and having day-to-day experience with the</p> <p>22 extraction of minerals?</p> <p>23 MR. FROST: Objection to form.</p> <p>24 THE WITNESS: It depends what's -- you</p> <p>25 know, what's shown on those maps, I suppose, in</p>

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<p>1 terms of detail.</p> <p>2 BY MR. BURNS:</p> <p>3 Q I'm sorry. Did you --</p> <p>4 A Yeah, I mean, I was going to say,</p> <p>5 again -- I mean, I really feel like I arrived</p> <p>6 at -- with -- at a place where I had the</p> <p>7 information I needed to basically meet -- meet my</p> <p>8 charge.</p> <p>9 Because, again, I mean, what you see in</p> <p>10 the rocks is -- is not -- is not random. What we</p> <p>11 see is very specifically controlled by the bolt</p> <p>12 composition of the rocks, the pressure and</p> <p>13 temperature conditions under which they were</p> <p>14 metamorphosed, the fluids that were present,</p> <p>15 and -- so I really -- you know, a good deal of my</p> <p>16 effort was really trying to understand, again, the</p> <p>17 petrologic systems of -- of these rocks -- sorry,</p> <p>18 these mines -- in detail.</p> <p>19 And so, you know, that information</p> <p>20 was -- was pretty clear from what I was able to</p> <p>21 review in the literature.</p> <p>22 Q Well, and just to be clear here, you're</p> <p>23 speaking, I take it, of your opinion generally as</p> <p>24 to the propensity for some of these formations to</p> <p>25 result in asbestos contamination of talc; is that</p>	<p>1 And really it's about sort of the --</p> <p>2 understanding the location of these is what helped</p> <p>3 me basically place these rocks in the context of</p> <p>4 the -- the evolution of this region.</p> <p>5 So again, yes, this was a starting point</p> <p>6 for, again, sort of other literature searches</p> <p>7 and -- and determining the -- the types of other</p> <p>8 information I needed to compile.</p> <p>9 Q But just so I'm clear at this early</p> <p>10 stage in the deposition as to your opinion, is it</p> <p>11 your opinion that there is no asbestos</p> <p>12 contamination in the J&amp;J mines in Vermont?</p> <p>13 A I see no --</p> <p>14 MR. FROST: Objection to form.</p> <p>15 THE WITNESS: I see no evidence to</p> <p>16 support the claim that there is asbestos in these</p> <p>17 mines.</p> <p>18 BY MR. BURNS:</p> <p>19 Q Among the materials that you've</p> <p>20 reviewed?</p> <p>21 MR. FROST: Objection.</p> <p>22 THE WITNESS: Well, I mean, my opinion</p> <p>23 is my opinion, which is based on the review of --</p> <p>24 of multiple papers, maps, and reports, and so, you</p> <p>25 know, I didn't really adopt something that was</p>
Page 35	Page 37
<p>1 right?</p> <p>2 A Yes.</p> <p>3 MR. FROST: Objection to form.</p> <p>4 BY MR. BURNS:</p> <p>5 Q And that is a general opinion, not a</p> <p>6 specific opinion. Is that right?</p> <p>7 MR. FROST: Objection.</p> <p>8 THE WITNESS: That's pretty specific to</p> <p>9 these -- to these mines.</p> <p>10 BY MR. BURNS:</p> <p>11 Q Well, so, for instance, did you use maps</p> <p>12 1, 3 and 5 to reach the opinion that there was no</p> <p>13 asbestos contamination in the talc that was mined</p> <p>14 in what I will refer to as the J&amp;J mines? I think</p> <p>15 you may use that term in your report as well.</p> <p>16 A Yeah. Well, this was a starting point.</p> <p>17 Q Yeah. What do you mean by "a starting</p> <p>18 point"?</p> <p>19 A In other words, I had to know where the</p> <p>20 mines were with respect to the geology of Vermont,</p> <p>21 with respect to the structure. That is, again,</p> <p>22 the result of multiple orogenic events that</p> <p>23 basically have folded and stretched these rock</p> <p>24 units that have a major impact, again, on the</p> <p>25 distribution of different metamorphic grades.</p>	<p>1 stated in the literature. I -- I synthesized all</p> <p>2 that information to arrive at the opinions I</p> <p>3 presented in this report.</p> <p>4 BY MR. BURNS:</p> <p>5 Q No, and -- and we'll get back to that,</p> <p>6 and I didn't mean to insinuate otherwise, Doctor.</p> <p>7 My point was really simply that your</p> <p>8 opinion is based on the materials you've listed in</p> <p>9 your report; is that right?</p> <p>10 MR. FROST: Objection to form.</p> <p>11 THE WITNESS: Yes, I've provided the</p> <p>12 reliance, and that is what I reviewed to arrive at</p> <p>13 my opinions, yes.</p> <p>14 BY MR. BURNS:</p> <p>15 Q Okay. And so if it's not listed in the</p> <p>16 materials that you relied on, then it's safe to</p> <p>17 assume that it is not something that you utilized</p> <p>18 to reach your opinion.</p> <p>19 A I'm sorry, I couldn't hear --</p> <p>20 Q Certainly.</p> <p>21 A -- the last part of your question.</p> <p>22 Q Yeah, no problem. I -- I'll restate it.</p> <p>23 So if -- if a material is not listed in</p> <p>24 the materials upon which you relied in your report</p> <p>25 or the supplemental listing that your counsel</p>

<p style="text-align: right;">Page 38</p> <p>1 provided last night, then it's safe to assume that</p> <p>2 you didn't rely on missing material to reach your</p> <p>3 opinions.</p> <p>4 MR. FROST: Objection to form.</p> <p>5 THE WITNESS: I'm not sure what you mean</p> <p>6 by relying on missing material. So --</p> <p>7 BY MR. BURNS:</p> <p>8 Q I'll switch it around. Is there</p> <p>9 anything besides those materials that you have</p> <p>10 listed in your report or in the supplemental list</p> <p>11 that we received last night on which you've relied</p> <p>12 in reaching your opinions?</p> <p>13 A No. To the best of my knowledge, I've</p> <p>14 given you a complete list. Beyond, again, sort of</p> <p>15 the -- my general experience and educational</p> <p>16 background. Certainly that plays in.</p> <p>17 Q Sure. So you began compiling the maps</p> <p>18 that are reflected in 1, 3 and 5 in Exhibit 3 as</p> <p>19 far back as 2017.</p> <p>20 When -- when had you completed the</p> <p>21 compilation of information that's reflected in</p> <p>22 these maps 1, 3 and 5?</p> <p>23 A Is this the first one?</p> <p>24 I'm sorry, I'm just looking in detail at</p> <p>25 what's listed --</p>	<p style="text-align: right;">Page 40</p> <p>1 Others, I -- I confirmed by -- you know,</p> <p>2 I did some actual just general web searches. And</p> <p>3 so, for example, I think some of the -- the mine</p> <p>4 locations are based on having seen town meeting</p> <p>5 documents where they talked about wastewater</p> <p>6 permits and gave the actual road that the map was</p> <p>7 located on. So it was kind of a variety of ways.</p> <p>8 Q I see. Were there any other sources</p> <p>9 that you used to create those pinpoints that you</p> <p>10 can recall?</p> <p>11 A No. I mean, nothing noteworthy. Again,</p> <p>12 I mean, based on, you know, literature references</p> <p>13 and then trying to confirm the most precise</p> <p>14 location, like I said, with some of those permits</p> <p>15 that I saw.</p> <p>16 Q Okay.</p> <p>17 A So...</p> <p>18 Q Now, throughout the day we're probably</p> <p>19 going to use the term "J&amp;J mines" just for ease of</p> <p>20 reference in Vermont and elsewhere, and, you know,</p> <p>21 between China and Italy, I can easily distinguish</p> <p>22 those.</p> <p>23 But what's your understanding of the J&amp;J</p> <p>24 mines in Vermont that were used to source talc for</p> <p>25 Johnson &amp; Johnson Baby Powder or Shower to Shower</p>
<p style="text-align: right;">Page 39</p> <p>1 Q No problem.</p> <p>2 A -- on here and trying to think if there</p> <p>3 was anything added in the last year, but I would</p> <p>4 say this has -- this has existed for a year or so.</p> <p>5 The exact dates I don't remember.</p> <p>6 Q And that's true of the zoomed-in</p> <p>7 portions as well?</p> <p>8 A Again, this is from a Google Earth</p> <p>9 database, so you zoom in and zoom out in real</p> <p>10 time. So...</p> <p>11 Q The compilation of material doesn't</p> <p>12 change.</p> <p>13 A Right, that's correct.</p> <p>14 Q Okay. Now, how did you establish the</p> <p>15 location of the pushpins on the maps?</p> <p>16 A Oh, there were a variety of methods. In</p> <p>17 some cases locations were taken from the published</p> <p>18 literature. And that could come in a variety of</p> <p>19 ways, from actual GPS coordinates listed to</p> <p>20 descriptions.</p> <p>21 So, for example, the Newfane mine is</p> <p>22 something that was basically a -- a description in</p> <p>23 a paper that then I conferred with the detailed</p> <p>24 quadrangle map to find the location, and then</p> <p>25 added the pushpin to this larger scale map.</p>	<p style="text-align: right;">Page 41</p> <p>1 products?</p> <p>2 MR. FROST: Well, I will just lodge a</p> <p>3 general objection to referring to the mines as</p> <p>4 "J&amp;J mines." If it's fine with you, we can call</p> <p>5 it a standing objection so I don't have to object</p> <p>6 every time you say it.</p> <p>7 MR. BURNS: That's fine, yeah.</p> <p>8 And just to cover your concern, I'm not</p> <p>9 imputing in any way that they were owned by J&amp;J or</p> <p>10 controlled.</p> <p>11 MR. FROST: Okay.</p> <p>12 MR. BURNS: That's a different issue.</p> <p>13 BY MR. BURNS:</p> <p>14 Q But really the source for baby powder</p> <p>15 used in -- or talc used in baby powder or</p> <p>16 shower -- Shower to Shower products. Sorry.</p> <p>17 A Yes.</p> <p>18 MS. O'DELL: Excuse me. You aren't</p> <p>19 saying they weren't -- aren't presently, but they</p> <p>20 could be known to produce.</p> <p>21 MR. BURNS: Right. Right. Fair enough.</p> <p>22 MR. FROST: Yep, that's fine. Just, you</p> <p>23 know, I'll lodge my general objection, but I --</p> <p>24 MR. BURNS: Understood.</p> <p>25 MR. FROST: -- for ease of reference,</p>

<p style="text-align: right;">Page 42</p> <p>1 that's -- that's fine, pending my objection.  2 THE WITNESS: So my understanding is  3 that the talc for talcum powders came from the  4 Hammondsville, Argonaut and Hamm mines.  5 BY MR. BURNS:  6 Q And that's a complete list?  7 A As far as I --  8 Q That you understood --  9 A Yeah, for -- for Vermont, yes.  10 Q Now, you've included in your maps  11 pushpins for several other mines in the area. Why  12 did you do that?  13 A So, for example, the Frostbite mine, I  14 refer to a study by Robinson -- I believe that's  15 the name -- Robinson, et al., 2006. So they  16 looked at the Frostbite mine.  17 The Grafton mine was in the Sanford,  18 1982, paper that I cite. Newfane as well.  19 So in some cases, you know, these are  20 mines where there were detailed studies done that  21 are relevant to what I was trying to accomplish  22 in -- in terms of my understanding of the  23 petrology.  24 Q Okay. Now, can you -- I'm looking at  25 map number 1 and do not see the Argonaut mine</p>	<p style="text-align: right;">Page 44</p> <p>1 Q Now, you've referenced the Chester dome,  2 which appears kind of on the right-hand side of  3 the -- of many of these maps.  4 What is the significance of the Chester  5 dome?  6 A So, again, that's the main geologic  7 structure. I mean, I think it shows up probably  8 perhaps best on the Doll, et al., 1961, map here  9 in terms of that elongate north-south blob.  10 But again, this is a dome that has a --  11 a sordid tectonic past. So the structure of the  12 dome is, again, the result of the tectonic Acadian  13 and the Alleghanian orogenies, and the -- the  14 metamorphism that's recorded by these rocks around  15 the dome is -- is -- basically it's dominated by  16 the -- the Acadian orogeny, and this is the time  17 at which the talc forms, during that tectonic  18 event.  19 But subsequently, the rocks have been  20 folded, so you have actually the deepest -- so the  21 rocks in the core of the dome record the highest  22 pressures and the highest temperatures, upper  23 amphibolite up to granulite facies. So that has a  24 direct control on the types of minerals that you  25 would see, for example, in the Grafton and the</p>
<p style="text-align: right;">Page 43</p> <p>1 referenced there. Is that a function of the  2 scale?  3 A It is. And that's why part of the  4 motivation for blowing up certain regions for  5 detail, yeah, because those names would have  6 overlapped in the first, yes.  7 Q I see. It is reflected in number 3.  8 A Yes.  9 Q The third map.  10 A Yes.  11 Q Now, how -- now, Ratcliffe, 2011, was  12 cited in your original report. How, if at all,  13 did these maps 1, 3 and 5 inform your opinions in  14 your report?  15 A Well, again, it's the understanding of  16 where the mines are located relevant to the  17 geologic structure of the Chester dome, which  18 relates directly to the grades of metamorphism of  19 the rocks that are exposed on the surface around  20 the dome.  21 And so, again, this was kind of a  22 starting point in terms of location and units and  23 structure that then feeds into the petrological  24 analysis as a function of -- of metamorphic grade  25 and history.</p>	<p style="text-align: right;">Page 45</p> <p>1 Chester Carlton quarries.  2 And as you move, in this case, west or  3 north, you move to lower grades of metamorphism.  4 So, you know, the Hammondsville quarry is at a  5 lower metamorphic grade relative to the Grafton or  6 Chester Carlton quarries. The Argonaut and  7 Newfane mines, they're again sort of pre- --  8 virtually similar to the Hammondsville.  9 So, again, you know, basically you've  10 got this high temperature, higher pressure suite  11 of rocks in the core of the dome and lower grade  12 rocks mantling it.  13 Q And when you refer to lower grades of  14 metamorphism, can you explain that?  15 A So, for example, in my report, I think  16 it's Figure 6, I've got a diagram with pressure  17 and temperature and different -- what geologists  18 call metamorphic facies. These are regions and  19 pressure temperature space where we expect rocks  20 of similar bulk composition to show similar  21 metamorphic assemblages as a function of those PT  22 conditions.  23 And so while rocks, say, at Grafton were  24 metamorphosed around 700 or 750 degrees C,  25 Hammondsville, Argonaut -- sorry, centigrade --</p>



<p style="text-align: right;">Page 46</p> <p>1     Hammondsville and the Argonaut, Hamm, Newfane,  2     those were all at what we would say Greenschist  3     facies conditions, which is roughly in the range  4     of 550 to -- or -- well, to lower amphibolite, so  5     550 to 575 degrees C.  6     Q   Okay. To shorthand that, and tell me if  7     I'm right or wrong -- and I appreciate your  8     answer -- compared to the Chester dome then, would  9     you say that the rocks in the J&amp;J mines were  10    formed in lower temperatures and lower pressure?  11    A   Yes, compared to the core of the Chester  12    dome. So the center of that -- that elongate  13    body, lower temperatures of metamorphism and --  14    and still relatively high pressures but lower  15    pressures as well.  16    Q   And I heard you use the term "TP." Is  17    that temperature and pressure?  18    A   PT, yeah.  19    Q   Or PT, pressure and temperature.  20    A   Yes, that's correct.  21    Q   Okay. And it is PT, not TP?  22    A   Maybe we say PT because TP sounds too  23    much like toilet paper.  24    Q   That's a fair point.  25    A   But, you know, they're just</p>	<p style="text-align: right;">Page 48</p> <p>1     that in the report, and I refer to Doll, et al.,  2     1961, as well as Karabinos, 2010.  3     Q   Now, the Doll maps here, tell me about  4     your process for preparing these maps. How did  5     you do it?  6     A   Well, the Doll map preexisted me, my  7     birth, by ten years, but -- excuse me -- basically  8     by, you know, georeferencing the -- the map. So  9     you can line up the boundary of the state of  10    Vermont in the map with the boundary of the state  11    of Vermont that you see in -- in Google Earth.  12    And similar to the -- the bedrock map of Vermont.  13    So I basically had different layers on the Google  14    Earth map backdrop.  15    Q   And what was your purpose for doing that  16    with the Doll maps?  17    A   Well, it's, again, the same thing in  18    terms of seeing where the mines plot relative to  19    grades of metamorphism that are presented in -- in  20    this map.  21    I mean, I guess I would say that --  22    yeah, I mean, the purpose for choosing this map,  23    again, because it showed the -- the whole state.  24    The areas around the Chester dome have been  25    refined slightly by Karabinos, et al., 2010.</p>
<p style="text-align: right;">Page 47</p> <p>1     abbreviations, shorthand, yeah.  2     Q   Let's look at the Doll maps then, 2 and  3     4.  4     Well, actually, just briefly before I  5     leave the Ratcliffe, 2011, these were produced  6     last night. Have these -- has the -- have the --  7     let me strike that.  8     Do the inclusion of these maps in your  9     supplemental materials provided last night  10    indicate in any way that they have altered or  11    changed the opinions in your report?  12    MR. FROST: Objection to form.  13    THE WITNESS: No. Again, these were  14    created prior to the submission of my report, and  15    in fact -- I mean, basically these -- there's a  16    version of this map as a figure in my report that  17    shows locations. So...  18    BY MR. BURNS:  19    Q   And is that true of the Doll maps as  20    well?  21    A   Yeah, nothing has changed with respect  22    to the Doll maps. I -- I refer to the Doll maps  23    and the isograds, which again relates to the --  24    isograd means, on a map, a contour of equal grade  25    of metamorphism. So I refer to -- I speak about</p>	<p style="text-align: right;">Page 49</p> <p>1     Q   Now, when did you prepare this map or  2     this overlay?  3     A   As I said, I mean, I've had it for at  4     least a year on my computer. So -- again, this  5     was really the starting point of my -- my work on  6     this issue.  7     Q   Okay. Now, map 4 is a zoom of map  8     number 2, correct, showing more clearly the  9     Chester dome?  10    A   Yes.  11    Q   And it also shows the Argonaut, Hamm,  12    and Hammondsville mines; is that right?  13    A   Yes.  14    Q   Okay. Among others.  15    A   Yeah.  16    Q   Okay. I'll drop that pen about 20 times  17    today, so don't worry.  18    MR. BURNS: All right. How about we  19    take a short break, and when we come back, we'll  20    go through the other maps we got this morning.  21    MR. FROST: Okay.  22    THE VIDEOGRAPHER: Going off -- going  23    off the record at 10:27.  24    (Recess.)  25    THE VIDEOGRAPHER: We're back on the</p>

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<p>1 record at 10:46 a.m.  2 BY MR. BURNS:  3 Q Welcome back, Dr. Webb.  4 I'd ask you to turn to your list of  5 supplemental materials in Exhibit 3 again. It's  6 about 20 pages deep.  7 A Okay.  8 Q All right. And before we get there, I  9 was discussing with your counsel, and I understand  10 that the maps we had been discussing, the five  11 maps in Exhibit 3, those were contained in your  12 files; is that right?  13 A Yeah. I guess I'm confused by the  14 terminology --  15 Q That's fine.  16 A -- of -- so --  17 Q I understood that. I just want to make  18 it clear and hopefully --  19 A Yeah.  20 Q -- save us some time. Those were maps  21 that you had developed and created, and -- and  22 presumably were saved on your computer; is that  23 fair?  24 A Yes. Yes.  25 Q Okay. And you provided those after</p>	<p>1 was a long time ago.  2 Q Now, did you -- did you read the actual  3 report?  4 A I went through sections of it.  5 Q Okay. Do you recall when you did that?  6 A It -- again, it would have been at the  7 time that I was putting together that Google Earth  8 project. So...  9 Q Okay. Can you describe for the Court  10 how, if at all, your review of this 1996 Ratcliffe  11 article informed your opinions that you're  12 offering in this case.  13 A Oh, like I said, basically the primary  14 purpose -- or one of the primary purposes for  15 looking at these was, again, to aid my ability to  16 put those pushpins in in the map. But especially  17 when there were -- I did look through the map  18 indexes, the descriptions of units, and also if  19 there were written reports, I looked through those  20 to see if there were incidences of reported  21 asbestos and, you know.  22 Q Do you recall anything specific about  23 this 1996 article that informed your opinions?  24 A No.  25 Q Now, Dr. Webb, we are going to hand</p>
Page 51	Page 53
<p>1 being requested to search your files by counsel?  2 A Yes. I think I understand the wording  3 now, yeah.  4 Q All right. Going back to that  5 supplemental list of materials reviewed, I want to  6 go through in detail each of the first five  7 entries. Starting with Ratcliffe, N.M.,  8 parentheses, 1996, Preliminary Bedrock Geologic  9 Map of the Andover quadrangle, Windsor County,  10 Vermont, U.S. Geological Survey open file report,  11 parentheses, No. 96-32, scale 1:24,000.  12 Now, in addition to identifying what  13 will end up being a series of maps, this entry  14 also reflects an article; is that right?  15 A Yes, there was a written report that  16 accompanied this.  17 Q Okay. And when did you review this  18 report?  19 A Again, probably around a year ago or so.  20 I -- again, I added these to -- to the reliance  21 list in response to having generated the files  22 that we were looking at, the -- the Google Earth  23 images. So I recalled that I had a folder of maps  24 that -- that were used when I was generating the  25 pushpins, et cetera, on that -- on that. So it</p>	<p>1 you -- and this may be a little bulky, I  2 apologize -- Exhibits 4A, B and C.  3 MR. FROST: I was going to say is there  4 a better way -- a better place to put these?  5 Probably not.  6 MR. BURNS: We can put them back after  7 she identifies them.  8 MR. FROST: Yeah, I was going to say --  9 I just want to make sure we have enough room to  10 even, like, plop them down here. Move my stuff  11 over.  12 (Webb Exhibit Nos. 4A, 4B and 4C  13 were marked for identification.)  14 BY MR. BURNS:  15 Q All right. Thank you.  16 So Exhibits 4A, B and C, do those  17 correspond to U.S. Geological Survey maps that are  18 associated with the Ratcliffe '96 report?  19 A Yes, these are three plates as part of  20 that report.  21 Q I see. And I think I understand based  22 on your testimony, but can you tell us again how,  23 if at all, you utilized these maps in reaching  24 your opinions or in your work?  25 A Yeah, so again -- well, I would just say</p>



<p style="text-align: right;">Page 54</p> <p>1 with respect to this map, I think I used -- this</p> <p>2 preliminary bedrock geologic map of the Andover</p> <p>3 quadrangle had the written report associated with</p> <p>4 it.</p> <p>5 And then the number 2 on that reliance</p> <p>6 list is the digital bedrock map, so that actually</p> <p>7 had the colored map. So I think I -- I referred</p> <p>8 to the color version of the map because the</p> <p>9 details jump out better at you, and then -- and</p> <p>10 then looked at that in comparison to the -- the</p> <p>11 written report.</p> <p>12 I mean, I'll be honest again, it's been</p> <p>13 a while since I've looked at these, so I kind of</p> <p>14 have to lay them down next to each other to figure</p> <p>15 out their spatial relationships in terms of, you</p> <p>16 know -- again, they would basically add up to what</p> <p>17 we see in that Ratcliffe, et al., bedrock map.</p> <p>18 Q And that was maps 1, 3 and 5 of the</p> <p>19 supplemental materials?</p> <p>20 A Yes.</p> <p>21 Q Okay. Thank you.</p> <p>22 And so did you obtain these maps at</p> <p>23 about the same time you obtained the Ratcliffe</p> <p>24 1996 report?</p> <p>25 A These are -- yes. I mean, these maps</p>	<p style="text-align: right;">Page 56</p> <p>1 A It would be about the same time</p> <p>2 basically.</p> <p>3 Q And --</p> <p>4 MR. FROST: Excuse me.</p> <p>5 MR. BURNS: Bless you.</p> <p>6 BY MR. BURNS:</p> <p>7 Q Can you tell us whether these maps in</p> <p>8 any way impacted your opinions that you rendered</p> <p>9 in this case?</p> <p>10 A Well -- again, I mean, using them for</p> <p>11 finding locations, so it was -- it was a starting</p> <p>12 point. I would say also in terms of the review of</p> <p>13 the -- the map unit descriptions and -- and the</p> <p>14 reports, the -- the lack of any report of -- of</p> <p>15 asbestos in -- in them, yes, was, in part,</p> <p>16 contributed to my opinion.</p> <p>17 Q When -- when you said "the lack of any</p> <p>18 report of asbestos in them," were you referring to</p> <p>19 the elements on the map?</p> <p>20 A I mean in total, in terms of seeing</p> <p>21 if -- if there's reference to -- yes, asbestos of</p> <p>22 any type in terms of the description of the units</p> <p>23 in the -- the map area, but also in terms of -- of</p> <p>24 the descriptions in -- in the written report.</p> <p>25 Q Now, Dr. Webb, just so I'm not</p>
<p style="text-align: right;">Page 55</p> <p>1 are part of -- if you go to the USGS site for</p> <p>2 that -- that report, you have access to the -- the</p> <p>3 written report and these plates all together.</p> <p>4 Q I see. And so you obtained them at the</p> <p>5 same time?</p> <p>6 A Yes.</p> <p>7 Q Okay.</p> <p>8 MR. BURNS: Why don't we hand her</p> <p>9 Exhibit No. 2, and then we'll take them all away.</p> <p>10 Or, sorry, Exhibit No. 5A and B, if I remember</p> <p>11 correctly.</p> <p>12 (Webb Exhibit No. 5A and 5B were</p> <p>13 marked for identification.)</p> <p>14 THE WITNESS: Okay.</p> <p>15 BY MR. BURNS:</p> <p>16 Q And, Dr. Webb, do these maps correspond</p> <p>17 to the second entry on your supplemental list of</p> <p>18 materials, Ratcliffe, N.M., 1996, digital bedrock</p> <p>19 geologic map of the Andover quadrangle, Vermont?</p> <p>20 A Yes, they do.</p> <p>21 Q And were these the maps you were just</p> <p>22 referencing and using the colored versions?</p> <p>23 A Yes.</p> <p>24 Q Okay. And when did you obtain these</p> <p>25 maps?</p>	<p style="text-align: right;">Page 57</p> <p>1 testifying for you, when you were referring to</p> <p>2 that area on the right-hand side of the map,</p> <p>3 what -- what is represented there?</p> <p>4 Sorry, the right-hand side.</p> <p>5 A Oh, sorry. This is the description of</p> <p>6 map units. So for each different colored map unit</p> <p>7 on here, there is a -- an age assignment, as it's</p> <p>8 understood, and a basic description of the rock</p> <p>9 type.</p> <p>10 Q Okay. When you say "a basic description</p> <p>11 of the rock type," what do you mean?</p> <p>12 A So right up at the top, it says, you</p> <p>13 know, for example, a map unit that's sort of</p> <p>14 purple, it says "DG," which stands for Devonian</p> <p>15 dikes, and the description is by type, "muscovite,</p> <p>16 granite." So short descriptions of both minerals</p> <p>17 and/or rock names that are standard.</p> <p>18 Q Within that unit?</p> <p>19 A Within that unit and within, yeah, the</p> <p>20 map area.</p> <p>21 Q Within the map. Okay.</p> <p>22 And you said there was an age identifier</p> <p>23 as well?</p> <p>24 A Yes.</p> <p>25 Q Okay. How are those age identifiers and</p>

<p style="text-align: right;">Page 58</p> <p>1 the rock or mineral identifiers developed? Who</p> <p>2 does that?</p> <p>3 A It's the result of over a hundred years</p> <p>4 of work of geologists out in this region, so --</p> <p>5 and USGS scientists, Vermont state geologists,</p> <p>6 academics who are -- and students who are involved</p> <p>7 in -- in mapping. So it's -- it's really a body</p> <p>8 of information that is refined over decades and</p> <p>9 decades of observation and analysis.</p> <p>10 Q I see. Now, when you said you would</p> <p>11 look at the map units to -- and I'm not trying to</p> <p>12 put words in your mouth, but --</p> <p>13 A Mm-hmm.</p> <p>14 Q -- you said you would look to the map</p> <p>15 units to determine whether asbestos was</p> <p>16 identified. Is that right?</p> <p>17 A Yeah. I mean, I was interested to see</p> <p>18 if it was mentioned anywhere, and then I would</p> <p>19 follow that -- that lead, but --</p> <p>20 Q And what type or what designated map</p> <p>21 units would you be looking for to determine</p> <p>22 whether asbestos was identified?</p> <p>23 A Well, it could be anything if it were</p> <p>24 there, but, I mean, of -- you know, of specific</p> <p>25 focus in this area of Vermont, of course, it's</p>	<p style="text-align: right;">Page 60</p> <p>1 THE WITNESS: They're the ultramafic</p> <p>2 units that are -- that are the protoliths for</p> <p>3 the -- the talc, ores in this case.</p> <p>4 BY MR. BURNS:</p> <p>5 Q How would they -- what's the association</p> <p>6 with asbestos in that context?</p> <p>7 A Well, where asbestos is documented in</p> <p>8 Vermont, it's associated with some ultramafic rock</p> <p>9 units. More typically, I mean, the serpentinite</p> <p>10 and talc and talc schist here, these are basically</p> <p>11 the serpentinite formed during the tectonic</p> <p>12 orogeny, the talc during the Acadian orogeny.</p> <p>13 The ultramafic rocks predated that. And</p> <p>14 where the ultramafic rocks are larger bodies that</p> <p>15 haven't been fully metamorphosed and</p> <p>16 recrystallized during these subsequent orogenic</p> <p>17 events, those are the rocks that -- that are</p> <p>18 reported to occasionally have those asbestos</p> <p>19 veins.</p> <p>20 Q Okay. Now, when you use the term</p> <p>21 "asbestos," how would you define that term?</p> <p>22 A I'm using that to refer to the six</p> <p>23 regulated minerals: So chrysotile, the</p> <p>24 asbestiform varieties of anthophyllite,</p> <p>25 actinolite, tremolite, grunerite and riebeckite.</p>
<p style="text-align: right;">Page 59</p> <p>1 the -- it's the ultramafic units.</p> <p>2 Q Okay. And who are those?</p> <p>3 A What kind of -- sorry, what kind of</p> <p>4 information do you mean or are looking for?</p> <p>5 Q Ultramafic units, what do you mean by</p> <p>6 that term?</p> <p>7 A Uh, right. So these are rocks that are</p> <p>8 basically derived from Earth's mantle. They're</p> <p>9 very rich in magnesium typically.</p> <p>10 Q And what are the -- can you give us some</p> <p>11 examples of those asbestos-bearing rocks?</p> <p>12 MR. FROST: Objection to form.</p> <p>13 THE WITNESS: I can give you an example</p> <p>14 of the ultramafic rocks --</p> <p>15 BY MR. BURNS:</p> <p>16 Q Yes.</p> <p>17 A -- that we were interested in about that</p> <p>18 question.</p> <p>19 But -- so, for example, here it says,</p> <p>20 "Ordovician to late Proterozoic ultramafic rocks.</p> <p>21 Map units OZU and OZT, serpentinite and talc, and</p> <p>22 also talc schist."</p> <p>23 Q And those are the types of ultramafic</p> <p>24 units that might contain asbestos?</p> <p>25 MR. FROST: Objection to form.</p>	<p style="text-align: right;">Page 61</p> <p>1 Q And you did say tremolite, right?</p> <p>2 A Yes.</p> <p>3 Q Okay. Have you reached any opinions in</p> <p>4 your report with respect to whether chrysotile</p> <p>5 asbestos may be found in the J&amp;J mines?</p> <p>6 A I have not seen any indications of that.</p> <p>7 And again, the chrysotile that is reported in --</p> <p>8 in Vermont, it formed during the tectonic orogeny,</p> <p>9 generally at relatively low grades of metamorphism</p> <p>10 in conjunction with like fracturing and fluid</p> <p>11 infiltration of the rocks.</p> <p>12 So, if it were present in the J&amp;J mines,</p> <p>13 as we're referring to them, those units underwent</p> <p>14 very extreme metamorphism, deformation and</p> <p>15 recrystallization during the Acadian orogeny.</p> <p>16 So, again, I haven't seen any chrysotile</p> <p>17 reported in -- in the area in that general belt of</p> <p>18 ultramafic rocks that we're concerned with, and if</p> <p>19 it had been present, I wouldn't expect it to</p> <p>20 survive the -- the Acadian metamorphic event.</p> <p>21 Q And when you -- just to be clear, when</p> <p>22 you say you haven't seen any indication of the</p> <p>23 chrysotile, I assume you're referring to -- you</p> <p>24 are referring to in the list of materials you've</p> <p>25 reported in your report; is that correct?</p>

<p style="text-align: right;">Page 62</p> <p>1 MR. FROST: Objection to form.</p> <p>2 THE WITNESS: Yeah, I -- yeah. So, I</p> <p>3 mean, I -- in the documents reviewed. In the</p> <p>4 studies that I -- I looked at, no.</p> <p>5 BY MR. BURNS:</p> <p>6 Q All right. I think we can take these</p> <p>7 away.</p> <p>8 A Thank you.</p> <p>9 Q Now, I'm going to hand you a few</p> <p>10 documents under Exhibit 6.</p> <p>11 (Webb Exhibit No. 6 was marked for</p> <p>12 identification.)</p> <p>13 BY MR. BURNS:</p> <p>14 Q Oh, just one document under Exhibit 6.</p> <p>15 A Okay.</p> <p>16 Q All right. Now, exhibit -- does</p> <p>17 Exhibit 6 correspond to the third entry in your</p> <p>18 supplemental list of materials, Ratcliffe, N.M.,</p> <p>19 2000, bedrock geologic map of the Cavendish</p> <p>20 quadrangle, Windsor County, Vermont?</p> <p>21 A It does, yes.</p> <p>22 Q Okay. And was there a report associated</p> <p>23 with this map?</p> <p>24 A Not that I -- that I can recall, no.</p> <p>25 Q And when did you obtain this map?</p>	<p style="text-align: right;">Page 64</p> <p>1 kilometers of -- of offset, like the San Andreas</p> <p>2 Fault, up to 300 kilometers there.</p> <p>3 Here, there's a normal shear zone -- and</p> <p>4 I'll just explain that in a second -- a normal</p> <p>5 shear zone that bounds the -- the Chester dome,</p> <p>6 and it's a -- it's a high -- what we would call</p> <p>7 high strain, meaning if you started out with a --</p> <p>8 something like a ball, it would be stretched</p> <p>9 into -- it could be a big, flat pancake or it</p> <p>10 could be a long cigar shape, or it depends on the</p> <p>11 nature of the deformation.</p> <p>12 But basically the shear zone that</p> <p>13 outlines the Chester dome is the -- is part of</p> <p>14 what's responsible for the -- the major</p> <p>15 differences in the temperatures -- the higher</p> <p>16 temperatures that are recorded in the core of the</p> <p>17 dome relative to the units that flank it.</p> <p>18 So, the Hammondsville unit would have</p> <p>19 been up here, and the core of the dome would have</p> <p>20 been up here, and after the faulting, basically</p> <p>21 they would be juxtaposed, and there would be a</p> <p>22 strong temperature and deformation gradient across</p> <p>23 that boundary.</p> <p>24 Q And the last term you used "in</p> <p>25 gradient"?</p>
<p style="text-align: right;">Page 63</p> <p>1 A Again, it would have been at the same</p> <p>2 time as the others, a year ago or so.</p> <p>3 Q Okay. And to what purpose did you put</p> <p>4 the data reflected in this map?</p> <p>5 A I'm sorry. Can you --</p> <p>6 Q To what purpose did you put the data</p> <p>7 reflected in this map or this map itself? What</p> <p>8 did you do with it?</p> <p>9 A Well, so this is -- I can recognize this</p> <p>10 right away. This is the northern end of the</p> <p>11 Chester dome, and so there are these small units,</p> <p>12 OZU -- I think it says OZU. So this is the</p> <p>13 Hammondsville mine, and it's basically at the</p> <p>14 northern end of this map.</p> <p>15 And so, again, an important aspect of --</p> <p>16 of this and the detailed position of that</p> <p>17 ultramafic body or the talc ores that are</p> <p>18 associated with it, is its position relative to</p> <p>19 this fault that outlines the -- the Chester dome.</p> <p>20 Q Again, what is a fault?</p> <p>21 A So a fault is a geologic structure</p> <p>22 across which there is displacement, and that</p> <p>23 displacement could range from -- I mean, we have</p> <p>24 microfaults, so it could be millimeters or</p> <p>25 centimeters of offset, and in some cases, you have</p>	<p style="text-align: right;">Page 65</p> <p>1 A A temperature --</p> <p>2 Q Or gradient?</p> <p>3 A A temperature and -- temperature,</p> <p>4 pressure, and deformation gradient.</p> <p>5 Q And when you say that, what do you mean?</p> <p>6 A Well, I mean that over a short distance,</p> <p>7 you could walk across rocks that record very</p> <p>8 different temperature and pressure conditions</p> <p>9 of -- of metamorphism. In terms of the</p> <p>10 deformation gradient, that would be going from</p> <p>11 rocks that -- I mean, everything is deformed here,</p> <p>12 but that are less deformed into rocks, that are</p> <p>13 more intensely deformed and stretched, and then</p> <p>14 back out into a lower strain or less deformation.</p> <p>15 Q I see. Now, are fissures commonly</p> <p>16 associated with fault lines?</p> <p>17 A They can be, but it depends on, again,</p> <p>18 the pressure, temperature, conditions. So this is</p> <p>19 really -- I mean, this -- this fault zone, the</p> <p>20 temperature gradient across it, again, is kind</p> <p>21 of in the range from, say, 700 degree C to, say,</p> <p>22 550 degrees C. And at those temperatures -- and</p> <p>23 it also depends on the details of the mineralogy,</p> <p>24 but in general that's hot enough where minerals</p> <p>25 are deforming by slip along the crystallographic</p>

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<p>1 planes. So we refer to that as ductile 2 deformation. 3 So when you have deformation occurring 4 under these higher temperature conditions, we tend 5 to not have voids or fissures opening up. That's 6 much more common in low temperature deformation 7 environments where the rocks are deforming 8 brittlely. 9 Q Okay. Do you know whether in fact there 10 are fissures associated with this fault line 11 around the Chester dome? 12 MR. FROST: Objection to form. 13 THE WITNESS: I have not seen really any 14 descriptions of such features. Again -- and in my 15 experience, I've actually worked in the shear zone 16 some, so my observation of rocks in the shear zone 17 is that it's more a continuum of ductile 18 deformation. We haven't -- haven't seen, yeah, 19 fractures opening up, filling with other minerals, 20 et cetera. 21 BY MR. BURNS: 22 Q How would you identify a fracture or -- 23 are fracture and fissure synonymous? 24 A Yeah, I mean, we don't really use the 25 word "fissure" in geology so much, or at least not</p>	<p>1 that have moved through there, you might have 2 crystallization of minerals. 3 Q And would that be what you were 4 referring to a few minutes ago when you said -- 5 referred to sort of minerals filling in the 6 fracture? 7 MR. FROST: Objection to form. 8 THE WITNESS: Yeah, I mean -- yeah. 9 BY MR. BURNS: 10 Q As a general principle, when you have 11 lower pressure and lower temperature, are the odds 12 greater that you would have or could have an 13 influx of water or liquids? 14 MR. FROST: Objection to form. 15 THE WITNESS: I mean, fluids will 16 preferentially follow pathways, such as faults and 17 fractures potentially, yeah. But, again, it 18 depends on a lot of variables. Yeah. 19 BY MR. BURNS: 20 Q Okay. I think that moves number 3. 21 And just so I'm sure, was there anything 22 in particular about Exhibit 6 there that impacted 23 or informed your opinions? 24 A Well, again, it's the finding the 25 location of the Hammondsville mine with regard to</p>
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<p>1 in my lexicon. But I think, you know, it's pretty 2 similar. I mean, a fracture -- and, again, 3 there's different types of fractures. There are 4 fractures that the rocks just pull apart. There 5 are fractures where there's some, like, little bit 6 of slip along them, and actually there's a slip 7 this way or slip this way, so there's mode 1, 2 8 and 3 of fractures, yeah. 9 Q Okay. So how would you identify, in the 10 field, a fracture? 11 A Uh, well, it's -- usually you would see 12 some -- a feature that crosscuts structural fabric 13 in the rock. So these rocks out here are highly 14 foliated, means that -- what that means is that 15 basically during the deformation, there are planar 16 elements that form. It could be defined by the 17 compositional banding. It could be defined by the 18 preferred orientation of minerals are in the -- in 19 the talc. Often that's the -- all the talc plates 20 would be aligned in that foliation plane. And so 21 there would be some truncation of that -- that 22 fabric. 23 And it depends on when the fracture 24 forms. If it formed very recently, it might just 25 be an -- an open space, but if there are fluids</p>	<p>1 the details of the map. 2 Q Okay. 3 A And moving from there. 4 Q Thank you. 5 I'm now going to hand you Exhibit No. 7, 6 and take No. 6. 7 (Webb Exhibit No. 7 was marked for 8 identification.) 9 THE WITNESS: It would help if I had 10 north up. (Peruses document.) 11 BY MR. BURNS: 12 Q Ready? 13 A Oh. Yes, sorry. 14 Q No, no problem. 15 A I can look at it all day. 16 Q So does -- Dr. Webb, does Exhibit No. 7 17 correspond to the fourth item on your supplemental 18 list of materials, Ratcliffe, 2000, bedrock 19 geologic map of the Chester quadrangle, Windsor 20 County, Vermont? 21 A Yes. 22 Q And was there an associated report? 23 A I -- I don't recall offhand on this one. 24 Q With respect to this map, what was 25 your -- when did you obtain it?</p>

<p style="text-align: right;">Page 70</p> <p>1 A Again, it would have been at the same</p> <p>2 time.</p> <p>3 Q And what was your purpose in obtaining</p> <p>4 it?</p> <p>5 A Oh, again, just -- I mean, I was just</p> <p>6 sort of gathering the quadrangle maps for the</p> <p>7 region in general. This one, I do not believe we</p> <p>8 see any of the -- the different talc mines, but I</p> <p>9 think this is the southern -- sorry, the more</p> <p>10 southern half of the -- the Chester dome.</p> <p>11 Q I see. So none of the J&amp;J talc mines</p> <p>12 are represented on that map?</p> <p>13 A No. I don't believe so, but I'd have</p> <p>14 to -- can I confer with my report map for a</p> <p>15 moment? Oh, this is not the colored one.</p> <p>16 MR. FROST: Do you want a color -- I'm</p> <p>17 just showing her a color copy of the same page.</p> <p>18 THE WITNESS: Yeah, so this is -- yes,</p> <p>19 this is the southern half of the Chester dome,</p> <p>20 and, no, none of the mines are located in the map</p> <p>21 area here.</p> <p>22 BY MR. BURNS:</p> <p>23 Q Okay. All right. Let's go to Exhibit</p> <p>24 No. 8.</p> <p>25 And this is going to be 8A and B.</p>	<p style="text-align: right;">Page 72</p> <p>1 from you.</p> <p>2 MR. BURNS: Can we mark that as</p> <p>3 Exhibit 9.</p> <p>4 MR. FROST: This is what, Zodac?</p> <p>5 MR. BURNS: Yeah.</p> <p>6 (Webb Exhibit No. 9 was marked for</p> <p>7 identification.)</p> <p>8 BY MR. BURNS:</p> <p>9 Q Dr. Webb, I've handed you Exhibit 9,</p> <p>10 which I believe corresponds to number 6 on your</p> <p>11 supplemental list, Zodac, P., 1940, a talc quarry</p> <p>12 near Chester, Vermont; is that correct?</p> <p>13 A That's correct.</p> <p>14 Q And it's published in Rocks &amp; Minerals;</p> <p>15 is that right?</p> <p>16 A Yes.</p> <p>17 Q How, if at all, did this article inform</p> <p>18 your opinions?</p> <p>19 A I looked at this after I had written my</p> <p>20 report, so it's -- it's not reflected in my</p> <p>21 report.</p> <p>22 Q Did it change your opinions at all?</p> <p>23 A No.</p> <p>24 Q Have any impact?</p> <p>25 A No.</p>
<p style="text-align: right;">Page 71</p> <p>1 (Webb Exhibit No. 8A and 8B were</p> <p>2 marked for identification.)</p> <p>3 BY MR. BURNS:</p> <p>4 Q Dr. Webb, do Exhibits 8A and B relate to</p> <p>5 the fifth entry on your supplemental list of</p> <p>6 materials, Ratcliffe and Armstrong, 2001, bedrock</p> <p>7 geologic map of the Saxtons River in Windham and</p> <p>8 Windsor Counties, Vermont?</p> <p>9 A Yes.</p> <p>10 Q Okay. And was there an associated</p> <p>11 report?</p> <p>12 A Again, I don't remember specifically</p> <p>13 for -- for this one. I'd have to look at the</p> <p>14 website or my files.</p> <p>15 Q And did you obtain these maps at roughly</p> <p>16 the same time as you obtained the preceding maps?</p> <p>17 A Yes.</p> <p>18 Q And were these maps again generally used</p> <p>19 to plot the location of the mines and -- and your</p> <p>20 inquiry into them?</p> <p>21 A Yeah. Again, this -- this one is sort</p> <p>22 of the southwestern end of the -- the Chester</p> <p>23 dome. So I recognize this -- this lobe. None of</p> <p>24 the mines are in this specific map area.</p> <p>25 Q Okay. All right. We can take that map</p>	<p style="text-align: right;">Page 73</p> <p>1 Q When did you first read this?</p> <p>2 A Three weeks ago or so.</p> <p>3 Q So early March?</p> <p>4 A Yes. That's about right.</p> <p>5 Q Okay. Did you -- did you find this</p> <p>6 article yourself or was it provided to you?</p> <p>7 A I found it myself.</p> <p>8 Q Okay. And why were you looking for it?</p> <p>9 A Because I was reviewing the literature,</p> <p>10 again just in general preparation, and I came</p> <p>11 across this article cited in -- I believe it was</p> <p>12 Van Gosen, 2004, and I just thought I should -- I</p> <p>13 realized I hadn't seen it and I thought I should</p> <p>14 look.</p> <p>15 Q And when you say you were reviewing the</p> <p>16 literature, the literature with respect to what?</p> <p>17 A I mean just the things that are -- I've</p> <p>18 cited in my report or in the reliance list, but</p> <p>19 just -- there's so much information that I -- to</p> <p>20 keep nimble, just to kind of constantly trying to</p> <p>21 review and -- and remember.</p> <p>22 Q When you were reviewing the literature,</p> <p>23 did you come across any studies or reports or</p> <p>24 articles that were contrary to your opinions</p> <p>25 expressed in your report?</p>



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<p>1 A No, not really. I mean, I -- I -- as I</p> <p>2 said, I spent some time looking in -- in detail --</p> <p>3 well, a wide variety of literature, and for</p> <p>4 example, that included Van Gosen, et al., 2004,</p> <p>5 and -- and the 2006 articles that I cited in -- in</p> <p>6 my report. Some of those are summary articles,</p> <p>7 and so I really tried to go in and look at the</p> <p>8 primary literature, not to rely on -- on someone's</p> <p>9 summary.</p> <p>10 But, you know, the Van Gosen, 2006,</p> <p>11 seemed relevant to follow up on the details of the</p> <p>12 citations, because in there -- in that report he</p> <p>13 published a map of asbestos localities in Vermont.</p> <p>14 Q Now, you mentioned primary literature.</p> <p>15 What do you mean by that?</p> <p>16 A I mean that I -- so, for example, the</p> <p>17 Van Gosen, 2006, map and digital supplements, what</p> <p>18 Van Gosen put on the map in terms of the</p> <p>19 localities where asbestos was presumably reported</p> <p>20 were not his first order observations. He had a</p> <p>21 citation list of the -- the people who made -- you</p> <p>22 know, presumably said that there was asbestos</p> <p>23 there. And -- and so I -- you know, I drilled</p> <p>24 down into that literature to try and see what</p> <p>25 information was in those articles, if I could</p>	<p>1 know, also the health implications for the people</p> <p>2 locally. So, I mean, you know, that -- it's the</p> <p>3 kind of thing that I think you want to be pretty</p> <p>4 certain about if you make that claim.</p> <p>5 Q Do you know whether Van Gosen was --</p> <p>6 felt pretty certain about it?</p> <p>7 A I have no idea. I mean, I imagine, if</p> <p>8 he put that out there, but I don't know.</p> <p>9 Q Were you ever provided details about the</p> <p>10 years in which the J&amp;J mines were in operation?</p> <p>11 MR. FROST: Objection to form.</p> <p>12 THE WITNESS: I mean, I think I have a</p> <p>13 general sense from the sum of what I've read,</p> <p>14 which includes, you know, testimony in</p> <p>15 depositions, but -- I have an idea, but it -- you</p> <p>16 know, it wasn't -- the exact years weren't really</p> <p>17 critical for what I was doing.</p> <p>18 BY MR. BURNS:</p> <p>19 Q Were you ever informed that J&amp;J sourced</p> <p>20 talc from the Johnson mine?</p> <p>21 A No.</p> <p>22 MR. FROST: Objection to form,</p> <p>23 belatedly.</p> <p>24 THE WITNESS: I mean, not for cosmetic</p> <p>25 purposes.</p>
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<p>1 verify basically the locations that he had shown</p> <p>2 on his map and understand their relationship to</p> <p>3 the -- the talc mines.</p> <p>4 Q Were you able to verify those locations?</p> <p>5 A Well, I was able to look at the</p> <p>6 literature that he cited, but in some cases,</p> <p>7 the -- the articles that he cited as reporting</p> <p>8 asbestos actually cited another article, and when</p> <p>9 I went to follow that trail, there was nothing in</p> <p>10 there in terms of a detailed locality. So I</p> <p>11 actually found that there were several dead ends.</p> <p>12 Q Did that cause you to discount</p> <p>13 Van Gosen?</p> <p>14 A Well, I mean, yeah, it gives me pause</p> <p>15 if -- because obviously there are big implications</p> <p>16 when you publish a map and say there's asbestos</p> <p>17 here, here, here and here, that if I couldn't</p> <p>18 verify the -- you know, the citations that were</p> <p>19 the basis of -- of that map, that -- that's, yeah,</p> <p>20 an issue, I think.</p> <p>21 Q Now, when you say "big implications,"</p> <p>22 what do you mean?</p> <p>23 A Well, property values for people. I</p> <p>24 mean, obviously if -- I know that's been an issue</p> <p>25 up around Mount Belvidere, et cetera, but, you</p>	<p>1 BY MR. BURNS:</p> <p>2 Q Were you provided any information</p> <p>3 whatsoever on the Johnson mine?</p> <p>4 MR. FROST: Objection to form.</p> <p>5 THE WITNESS: No.</p> <p>6 Well, I will say that -- actually</p> <p>7 correct one thing, in the sense that I saw a</p> <p>8 reference to it in the plaintiffs' reports and a</p> <p>9 citation for a Seymour thesis. So I did ask -- I</p> <p>10 wasn't able to access that thesis, so I asked</p> <p>11 counsel to provide that, if possible.</p> <p>12 BY MR. BURNS:</p> <p>13 Q And were you provided it?</p> <p>14 A Yes.</p> <p>15 Q Did you review it?</p> <p>16 A I had a look at it. But, you know, the</p> <p>17 Johnson mine is so far up north and in a different</p> <p>18 portion of the belt that it -- it didn't really</p> <p>19 factor into my opinion.</p> <p>20 And even though it makes reference I</p> <p>21 think to the Hammondsville mine, I -- I wasn't --</p> <p>22 I don't know. A master's thesis isn't -- that</p> <p>23 makes peripheral reference isn't what I'm going to</p> <p>24 consider as like the key piece of information that</p> <p>25 my report would hinge on.</p>

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<p>1 Q Is it your opinion then that the areas</p> <p>2 of the Johnson mine and the Hammondsville mine are</p> <p>3 geologically distinct then?</p> <p>4 A Yes.</p> <p>5 Q Now, in your supplemental materials that</p> <p>6 were provided last night, right before the maps in</p> <p>7 Exhibit 3, there is a spreadsheet for the Pooley</p> <p>8 report in Vermont.</p> <p>9 A Yes.</p> <p>10 Q And can you tell me what's reflected</p> <p>11 here?</p> <p>12 A So when I reviewed the Pooley report, I</p> <p>13 created this table to basically write notes about</p> <p>14 his descriptions of the mineralogy, whether the</p> <p>15 mineral was a major or minor component of the rock</p> <p>16 or an accessory mineral, and -- and the different</p> <p>17 textures that were either described or present in</p> <p>18 the photomicrographs.</p> <p>19 Q So these are your notes on the Pooley</p> <p>20 report?</p> <p>21 A Yes.</p> <p>22 MR. FROST: Objection to form.</p> <p>23 THE WITNESS: I mean, it was a way -- a</p> <p>24 way to sort of organize the -- the data, yeah.</p> <p>25 BY MR. BURNS:</p>	<p>1 reading something, I make notes like this to just</p> <p>2 sort of help process the -- the information.</p> <p>3 So -- and it gave me a quick way to refer -- if I</p> <p>4 wanted to refer back to his report to check on</p> <p>5 something, this gave me sort of a quick way to</p> <p>6 navigate to, say, a particular sample, et cetera.</p> <p>7 Q Did you try to be as thorough as</p> <p>8 possible in -- in recording the information from</p> <p>9 his report?</p> <p>10 MR. FROST: Objection to form.</p> <p>11 THE WITNESS: Yeah, I mean I -- I</p> <p>12 worked -- as I read the results or the</p> <p>13 descriptions of a particular sample, I -- I made</p> <p>14 these notes. So -- I certainly wouldn't be</p> <p>15 motivated to have it be inaccurate, but --</p> <p>16 BY MR. BURNS:</p> <p>17 Q Okay. And your recollection of the</p> <p>18 Italian spreadsheet or form, can you talk about</p> <p>19 that a little bit. Were you doing the same thing?</p> <p>20 A It's the same thing in terms of</p> <p>21 headings across the top would relate to the</p> <p>22 samples that he had petrographic descriptions for.</p> <p>23 And then the -- sorry, and then in the first</p> <p>24 column would be the -- the list of the different</p> <p>25 minerals that were mentioned. And so it would be</p>
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<p>1 Q When did you make these notes?</p> <p>2 A Oh, I'd say in January probably.</p> <p>3 Q And that's 2019?</p> <p>4 A Yes. Yeah.</p> <p>5 Q Okay.</p> <p>6 A Well, actually, I'll take that back.</p> <p>7 The Pooley report would have been sometime earlier</p> <p>8 for Vermont, but the -- the Italian -- there was a</p> <p>9 table for the Italian.</p> <p>10 Q So you have another table for the</p> <p>11 Italian mine?</p> <p>12 A It's the same form, yeah. Basically,</p> <p>13 yeah.</p> <p>14 MR. BURNS: Jack, if you can find that.</p> <p>15 MR. FROST: We'll take a look, and we'll</p> <p>16 figure out if it's in there or not.</p> <p>17 THE WITNESS: Yeah, it would have been a</p> <p>18 second tab in the Excel file, I think.</p> <p>19 MR. FROST: Yeah, we'll take a look.</p> <p>20 We'll get back to you after a break.</p> <p>21 MR. BURNS: Sure.</p> <p>22 BY MR. BURNS:</p> <p>23 Q What use did you put to this table? How</p> <p>24 did you use it, if at all?</p> <p>25 A Well, sometimes -- I mean, I -- as I'm</p>	<p>1 the same format with the major, minor, accessory,</p> <p>2 and any notes related to the -- the textures</p> <p>3 observed.</p> <p>4 Q Now, you prepared this before your</p> <p>5 original report?</p> <p>6 A Yeah, the -- the Pooley report from</p> <p>7 Vermont is actually the -- the first document I</p> <p>8 ever saw, and it was prior to when I was retained.</p> <p>9 So this -- it would -- yeah, the first time I saw</p> <p>10 this report would be back in probably May of 2017.</p> <p>11 I think I made the table during that summer,</p> <p>12 but...</p> <p>13 Q Okay. And with respect to the Italian</p> <p>14 report?</p> <p>15 A Again, I think -- I think I saw that --</p> <p>16 that prior to this litigation, but that table I</p> <p>17 created -- I rereviewed the report, I think, as I</p> <p>18 said, in January and created that table at that</p> <p>19 time.</p> <p>20 Q And that's the Italian table, just to be</p> <p>21 clear?</p> <p>22 A Yes.</p> <p>23 Q So the Pooley report for Vermont, you</p> <p>24 reviewed sometime summer of 2017?</p> <p>25 A Yes.</p>



<p style="text-align: right;">Page 82</p> <p>1 Q And created this table?</p> <p>2 A (The witness nods.)</p> <p>3 Q Now, preceding that, there are graphical</p> <p>4 representations that look pretty similar to some</p> <p>5 of the things in your report.</p> <p>6 Can you tell us what the two preceding</p> <p>7 pages encompass?</p> <p>8 A Yeah, so there's -- yeah. It's</p> <p>9 basically this was an early version of the -- the</p> <p>10 table that shows up in -- in my report. There's</p> <p>11 some places where I just had some other notes that</p> <p>12 I -- that I jotted down.</p> <p>13 So -- yeah, it's a bigger spreadsheet,</p> <p>14 so it shows this -- it would be continuous in my</p> <p>15 Excel file, but it shows up on multiple pages</p> <p>16 here.</p> <p>17 Q I see. So --</p> <p>18 A So page 1 would be the first column that</p> <p>19 would line up with page 2, and --</p> <p>20 Q Okay. So the first column would be --</p> <p>21 A The mineral name.</p> <p>22 Q -- mineral and talc, and then the second</p> <p>23 column would be formula. Correct?</p> <p>24 A Correct, yes.</p> <p>25 Q Okay. And what is the next page then?</p>	<p style="text-align: right;">Page 84</p> <p>1 A Yes.</p> <p>2 Q And was that for purposes of the MDL?</p> <p>3 A That was prior to being brought into</p> <p>4 this.</p> <p>5 Q Prior to being brought into this case?</p> <p>6 A Yes.</p> <p>7 Q I see. Were you retained generally or</p> <p>8 was it for a specific litigation?</p> <p>9 A I was retained generally. My</p> <p>10 understanding is there was sort of a -- a</p> <p>11 reorganization, and I have no idea how this works,</p> <p>12 but -- of who deals with --</p> <p>13 MR. FROST: I was going to say, I'd</p> <p>14 instruct you not to talk about what any of the</p> <p>15 lawyers --</p> <p>16 THE WITNESS: Oh, okay.</p> <p>17 MR. FROST: -- have told you about, you</p> <p>18 know, but --</p> <p>19 THE WITNESS: I was asked to sign a new</p> <p>20 retainer in October because of something that, I</p> <p>21 don't know, was reorganized in the structure of</p> <p>22 things, and so I signed a new retainer with</p> <p>23 Tucker &amp; Ellis.</p> <p>24 BY MR. BURNS:</p> <p>25 Q So Tucker Ellis replaces the Shook Hardy</p>
<p style="text-align: right;">Page 83</p> <p>1 A That would be the final column. So just</p> <p>2 for quick reference, if I had -- I often had the</p> <p>3 mineral table up when I was reading stuff to --</p> <p>4 just to be able to refer to quickly, and also so</p> <p>5 then I pasted in a picture -- again, this is I</p> <p>6 think the same image that's ultimately produced</p> <p>7 in -- in my report about the -- the amphibole</p> <p>8 structure.</p> <p>9 There is a column on, yeah, the</p> <p>10 Fe sites, so the M2, M4, M -- or whatever number,</p> <p>11 all refer to specific lattice sites, and you can</p> <p>12 see them in the image that adjoins that.</p> <p>13 Q Mm-hmm.</p> <p>14 A But the question being where -- where</p> <p>15 does iron live in the mineral lattice in -- in</p> <p>16 different amphiboles.</p> <p>17 Q I see.</p> <p>18 A "Live" not being a great word for that,</p> <p>19 but where does it reside typically.</p> <p>20 Q Flipping past the maps, there are a</p> <p>21 couple of retention letters, one by Tucker Ellis,</p> <p>22 one by Shook Hardy &amp; Bacon; is that right?</p> <p>23 A Yes.</p> <p>24 Q And you were retained by Tucker Ellis in</p> <p>25 October of 2018?</p>	<p style="text-align: right;">Page 85</p> <p>1 retainer.</p> <p>2 A It does, yes.</p> <p>3 Q And the Shook Hardy retainer, which was</p> <p>4 signed back in June of 2017, was that for a</p> <p>5 particular piece of litigation or generally?</p> <p>6 A No, that was just general consulting.</p> <p>7 Q Okay. And your fee there was \$250 an</p> <p>8 hour; is that right?</p> <p>9 A Yes.</p> <p>10 Q And with respect to the Tucker Ellis</p> <p>11 retention, it increased to \$458 an hour; is that</p> <p>12 right?</p> <p>13 A Yes.</p> <p>14 Q And why is that?</p> <p>15 A Well, the -- for one, I had a -- I think</p> <p>16 a better understanding of -- there was more</p> <p>17 expertise on this topic at the time of the</p> <p>18 re-signing, plus it was looking forward to -- I</p> <p>19 mean, looking ahead to work like this. And so in</p> <p>20 my, you know, prior work, I was -- well, there's a</p> <p>21 different level of intensity and commitment and</p> <p>22 inconvenience now, and so the price went up.</p> <p>23 Q I'm sure that everyone on both sides of</p> <p>24 this table can relate.</p> <p>25 Now, following that are I think invoices</p>

<p style="text-align: right;">Page 86</p> <p>1 that you sent to Tucker Ellis; is that correct?</p> <p>2 Three of them?</p> <p>3 A Sorry, following that, is that -- yes.</p> <p>4 Q And the details of those invoices are</p> <p>5 redacted; is that right?</p> <p>6 A Apparent- -- yes.</p> <p>7 Q Okay. Do you recall whether the</p> <p>8 redacted portions -- I'm not going to ask you what</p> <p>9 they say -- but do you recall whether they</p> <p>10 reflected communications with your counsel?</p> <p>11 A There was some of that in there.</p> <p>12 Q Okay. Was there other</p> <p>13 noncommunication-related detail around your work?</p> <p>14 MR. FROST: Objection to form.</p> <p>15 THE WITNESS: Noncommunication-related,</p> <p>16 you said?</p> <p>17 BY MR. BURNS:</p> <p>18 Q Yes.</p> <p>19 A Yes.</p> <p>20 MR. BURNS: And we would ask, Mr. Frost,</p> <p>21 that y'all review those redactions to determine</p> <p>22 whether there are any pieces that can be produced.</p> <p>23 MR. FROST: I'll take it under</p> <p>24 advisement.</p> <p>25 BY MR. BURNS:</p>	<p style="text-align: right;">Page 88</p> <p>1 THE VIDEOGRAPHER: Going off the record</p> <p>2 at 11:41 a.m.</p> <p>3 (Recess.)</p> <p>4 THE VIDEOGRAPHER: We are back on the</p> <p>5 record at 11:58 a.m.</p> <p>6 BY MR. BURNS:</p> <p>7 Q Welcome back, Dr. Webb.</p> <p>8 So, Dr. Webb, we're going to start going</p> <p>9 through your qualifications, your background and</p> <p>10 experience. It's the next step on our journey.</p> <p>11 In the supplemental materials you --</p> <p>12 your counsel provided last night, there is a CV or</p> <p>13 resume on -- let's see -- it's right past the</p> <p>14 supplemental list.</p> <p>15 A Okay.</p> <p>16 Q Now, is this your current CV?</p> <p>17 A I believe so. I haven't checked what's</p> <p>18 in here, but I did send them an -- an updated CV</p> <p>19 that was included.</p> <p>20 Q Okay. Now, I take it you graduated high</p> <p>21 school in 1990?</p> <p>22 A 1989.</p> <p>23 Q Oh, '89. All right. Well, we're only a</p> <p>24 year apart. But you got your Bachelor of Science</p> <p>25 in geology at UCLA; is that right?</p>
<p style="text-align: right;">Page 87</p> <p>1 Q Okay. Well, I'll put this back up</p> <p>2 because we've hit something of a milestone,</p> <p>3 Dr. Webb, and I think we've largely exhausted most</p> <p>4 of the portions of the subpoena. So we can check</p> <p>5 that off, and we'll go to your qualifications.</p> <p>6 MR. BURNS: Given where we're at, it</p> <p>7 might make sense to take a break.</p> <p>8 MR. FROST: I was going to say we can</p> <p>9 take a break now. I don't know what your plan is</p> <p>10 for lunch. I don't know how long the</p> <p>11 qualifications is going to take. You know, I</p> <p>12 would say if it's going to take a half hour, you</p> <p>13 might want to do that, and then break for lunch.</p> <p>14 If you think it's going take a little longer, we</p> <p>15 can, you know --</p> <p>16 MR. BURNS: Yeah, it might.</p> <p>17 MR. FROST: -- take a really short break</p> <p>18 now, and then maybe break for lunch at 1:00.</p> <p>19 MR. BURNS: Yeah, that's fine. Why</p> <p>20 don't we take --</p> <p>21 MR. FROST: Maybe you may want to take a</p> <p>22 short break, and then --</p> <p>23 MR. BURNS: Sure.</p> <p>24 MR. FROST: -- we'll make it through</p> <p>25 this area.</p>	<p style="text-align: right;">Page 89</p> <p>1 A Yes.</p> <p>2 Q And from there you went to Stanford?</p> <p>3 A Correct.</p> <p>4 Q And in 1999, you received your Ph.D.</p> <p>5 doctoral degree in geological and environmental</p> <p>6 sciences; is that right?</p> <p>7 A That's correct.</p> <p>8 Q Now, did you have a specific area of</p> <p>9 emphasis in your doctoral work?</p> <p>10 A Well, there were two main projects</p> <p>11 thematically, but they basically involved</p> <p>12 development of the same areas of expertise, and</p> <p>13 that is petrology and, more specifically,</p> <p>14 metamorphic petrology being a focus of my work:</p> <p>15 The study of rock structures or rock deformation</p> <p>16 and its relationship to metamorphism; and then</p> <p>17 also the radio- -- excuse me -- the radiometric</p> <p>18 dating of minerals to then understand the -- the</p> <p>19 timing of metamorphism and deformation.</p> <p>20 Q All right. Can you describe what</p> <p>21 radiometric dating of minerals involves.</p> <p>22 A Yeah. So for many elements, there are</p> <p>23 different isotopes, which differ in the number of</p> <p>24 neutrons in the atom. Some of these are</p> <p>25 radioactive, so in particular, my -- the technique</p>

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1 we do in my laboratory is -- is fundamentally  
 2 based on the decay of potassium 40 -- that's the  
 3 isotope number -- to argon 40.  
 4 And so -- but we do a variation on that  
 5 that I can describe if you want. But basically,  
 6 we analyze the -- the isotope ratios of the  
 7 radioactive parent and the daughter product to  
 8 determine an absolute age.  
 9 Q And by "absolute age," what do you mean?  
 10 A That would be, say, to say -- calculate  
 11 an age of like 544 million years rather than  
 12 generally referring back to the Cambrian or  
 13 something like that. So...  
 14 Q I see. So in layman's terms, if I could  
 15 hand you a rock, theoretically you could take it  
 16 back to your laboratory and date it through that  
 17 process?  
 18 A Yeah, as long as -- in my case, as long  
 19 as there are potassium-bearing minerals.  
 20 Q I see. And do those attend certain  
 21 types of rocks?  
 22 A Yes. It's all a function of the bulk  
 23 composition of -- of the rock. But, yeah,  
 24 certain -- certain rocks you can -- are pretty  
 25 much guaranteed you can find these potassium-

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1 ores of pure talc and magnesites, they would not  
 2 be the ideal targets for that.  
 3 Q I see. During your doctoral work at  
 4 Stanford, did you perform any studies or -- or let  
 5 me leave it there.  
 6 Did you perform any studies that  
 7 involved talc as a mineral?  
 8 A There was talc present in -- in some  
 9 rocks, yes.  
 10 Q But did you -- were you focused on the  
 11 talc itself or focused on some other aspect of the  
 12 rock?  
 13 A Well, I was focused on -- I mean, again,  
 14 the same basic principles, understanding the  
 15 mineralogy and the textures in different rocks,  
 16 the relationship of that as deformation, and then,  
 17 again, based on the -- the thematic problems I was  
 18 working on, you know, finding other targets for --  
 19 for dating. So it wasn't basically focused on --  
 20 on talc itself, but...  
 21 Q Did you do any work that was  
 22 specifically focused on asbestos?  
 23 A No.  
 24 Q Now, your doctoral dissertation was in  
 25 exhumation of high and ultra high pressure rocks

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1 bearing minerals in, yeah.  
 2 Q I see. Are there certain rocks that are  
 3 on the other end of that equation where you can  
 4 assume that you don't have those potassium-bearing  
 5 mineral -- minerals?  
 6 A Yes.  
 7 Q What types of rocks are those? Do you  
 8 have some examples?  
 9 A Well, so rocks that don't have  
 10 significant potassium in them, like the ultramafic  
 11 rocks, for example, or a quartzite or a marble  
 12 or -- I mean, sometimes we can do a whole rock  
 13 analysis. But, yeah, I mean, the -- the --  
 14 generally the mineral -- mineralogy is a function  
 15 of the bulk composition among the other variables  
 16 of metamorphism.  
 17 Q I see. So with respect to talc then,  
 18 it's fair to assume that you're not ordinarily  
 19 using rocks containing talc mineral -- minerals in  
 20 your dating process. Is that fair?  
 21 A Well, there -- there may be the  
 22 possibility of that, but -- again, it just depends  
 23 on the bulk composition of the -- of the rock and  
 24 the -- and the history.  
 25 But, you know, pure -- like these talc

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1 in the Qinling-Dabie --  
 2 A Qinling, yeah.  
 3 Q -- Qinling-Dabie -- is it Dabie or --  
 4 A Dobby (phonetic).  
 5 Q Dobby (phonetic).  
 6 -- Qinling-Dabie orogen?  
 7 A Yes.  
 8 Q Eastern China and --  
 9 A The Yagan-Onch Hayrhan metamorphic core  
 10 complex.  
 11 Q All right. And we are going to have to  
 12 spell this --  
 13 MR. FROST: I was going to say, we'll  
 14 get you a list.  
 15 BY MR. BURNS:  
 16 Q Can you describe generally what this  
 17 dissertation was about?  
 18 A Yeah. So those -- those are actually  
 19 two projects in that -- that title. So the  
 20 "Exhumation of high and ultra high pressure rocks  
 21 in the Qinling-Dabie Orogen," so there we had  
 22 basically a continental collision that occurred at  
 23 the end of the Permian, early Triassic, and you  
 24 had the leading edge of the continental margin  
 25 went down a subduction zone, down to mantle

<p style="text-align: right;">Page 94</p> <p>1 depths, like 90, 100 or more kilometers depth, and  2 somehow those rocks came back to the surface. And  3 so in some of those rocks, little bits of carbon  4 turned into microdiamonds and quartz turned into  5 coesite, a high-pressure polymorph, as a function  6 of having reached those high pressures, and  7 somehow they were brought back to the surface.  8 And so when I was in my Ph.D., this was  9 early after the first reports of these ultra high  10 pressure rocks at the surface, so we went to the  11 Qinling-Dabie Orogen, which was one of the largest  12 orogenic belts where this was recorded, to try and  13 again document the different metamorphic  14 assemblages, their relationship to different  15 fabrics that would form during deformation, during  16 exhumation, and also to try and date the timing of  17 when did the rocks first reach those depths and  18 how, and how fast did they come back to the  19 surface.  20 So it's really an integrative piece of  21 metamorphic petrology, structural geology, and  22 again the radiometric dating.  23 Q Did you figure out how they came back  24 up?  25 A Yeah.</p>	<p style="text-align: right;">Page 96</p> <p>1 A Yeah. Well, that -- in the thin  2 section, look at the microstructure and integrate  3 that back into the outcrop and regional scale.  4 Q And you were also able to date the  5 rocks; is that right?  6 A Yes.  7 Q Okay. Now, after you received your  8 Ph.D., it looks like you went to the University of  9 Geneva in Switzerland; is that right?  10 A That's correct, yes.  11 Q And what did you do there?  12 A I -- well, I worked in the -- the  13 argon -- so this is the same type of lab that I  14 have here at UVM, but the argon laboratory, and --  15 pardon me.  16 Q That's okay.  17 A There I was working with igneous  18 petrologists, and so we were dating some samples  19 from the -- the Andes.  20 Q And from there you went to Syracuse  21 University; is that right?  22 A That's correct.  23 Q And you, it looks like, worked in both  24 the noble gas isotopic research as a research  25 laboratory manager and as an assistant professor?</p>
<p style="text-align: right;">Page 95</p> <p>1 Q How was it?  2 A Plates reorganize and the subduction  3 zone got reactivated as a normal fault system.  4 And so basically, because South China started  5 moving, relative to today's geographic coordinates  6 started moving south again, it basically pulled  7 that continental margin out of the subduction  8 zone.  9 Q Okay. Now, when you mentioned going to  10 the Qinling-Dabie Orogen, did you physically visit  11 the site?  12 A Yes.  13 Q And what did you do while you were on  14 site?  15 A We found outcrops where we observed the  16 metamorphic -- again, metamorphic rock types, and  17 really there, in particular, documenting the  18 structures and taking sample -- oriented samples  19 to then bring back and make thin sections, and  20 look at the petrography and also choose select  21 samples for dating.  22 Q So once you brought those samples back  23 and did the thin sections, you were able to look  24 at the structure of the -- of the rock. Is that  25 fair?</p>	<p style="text-align: right;">Page 97</p> <p>1 A Yes.  2 Q Okay. And what was the focus of your  3 work while you were at Syracuse?  4 A Well, when I first arrived, the lab was  5 an empty room, so I actually helped build and  6 commission the laboratory. And then we turned our  7 attention to different projects. A big focus of  8 my research there was on Papua, New Guinea.  9 Q And the rocks in Papua -- Papua, New  10 Guinea?  11 A Yes.  12 Q I see. What exactly is a noble gas  13 isotopic research?  14 A So argon, neon, helium, they're all  15 noble gases. They have filled outer electron  16 shells, so they don't bond with other elements.  17 Q I see. Just like kings, they don't play  18 well with others, right?  19 A Yeah, they don't need anybody else.  20 Q And from Syracuse, you went to the  21 University of Vermont; is that right?  22 A Yes.  23 Q Okay. And that was in 2009?  24 A I started here in the fall of 2008.  25 Q Okay. And you are still at the</p>

<p style="text-align: right;">Page 98</p> <p>1 University of Vermont; is that right?</p> <p>2 A That's correct.</p> <p>3 Q And are you an associate professor</p> <p>4 today?</p> <p>5 A I am, yes.</p> <p>6 Q Has there been any particular focus to</p> <p>7 your work here at -- in Vermont?</p> <p>8 A Again, general themes of integrating</p> <p>9 metamorphic petrology and structural geology</p> <p>10 and -- and age dating. I've worked in Papua, New</p> <p>11 Guinea, I've worked in Mongolia, and I've been</p> <p>12 working a lot in -- in Vermont.</p> <p>13 Q When did your work in Vermont begin?</p> <p>14 A Pretty much upon my arrival.</p> <p>15 Q Mm-hmm. And what has been your focus</p> <p>16 there? Is there a particular area, geographic or</p> <p>17 otherwise?</p> <p>18 A It varies. I mean, I guess the Chester</p> <p>19 dome area is the farthest south, and then I've</p> <p>20 worked in the Tillotson Peak complex, so that's</p> <p>21 a -- in the northern part. I mean, generally kind</p> <p>22 of in the Green Mountains generally, but also in</p> <p>23 the Lake Champlain basin.</p> <p>24 Q And what have you been trying to do in</p> <p>25 the Green Mountains? Is there an overarching</p>	<p style="text-align: right;">Page 100</p> <p>1 that resulted in vertical thinning and the</p> <p>2 juxtaposition of the rocks at different</p> <p>3 metamorphic grades.</p> <p>4 Q Are there differences between the</p> <p>5 eastern margin and the western margin?</p> <p>6 A We've looked at some over there. Our --</p> <p>7 the -- I mean, this is the beginning of that sort</p> <p>8 of investigation. But the reason I mentioned the</p> <p>9 eastern margin specifically is because there,</p> <p>10 there happen to be roads that cross good exposures</p> <p>11 of rock types where you can do a sampling transect</p> <p>12 from the core through the attenuated mantle unit.</p> <p>13 So it's more about the opportunity -- the sampling</p> <p>14 opportunities there.</p> <p>15 Q Roads have been cut through that?</p> <p>16 A Right. You might -- well, it's not very</p> <p>17 green here now, but -- the -- the foliage poses</p> <p>18 some challenges at times, yeah.</p> <p>19 Q And what have you done on the</p> <p>20 southern -- on the Athens dome region or that</p> <p>21 southern region?</p> <p>22 A Again, just in particular, some very</p> <p>23 good outcrops there that allow for some more</p> <p>24 detailed study.</p> <p>25 Q Have you reached any conclusions or</p>
<p style="text-align: right;">Page 99</p> <p>1 theme to your work there?</p> <p>2 A Well, it -- it depends. Again, there's</p> <p>3 a very complex geologic and tectonic history. You</p> <p>4 know, we have these very beautiful, detailed</p> <p>5 geologic maps, but there's a lot of room for</p> <p>6 refinement in some of the ages of events, and</p> <p>7 particularly looking at the -- the reactivation of</p> <p>8 structures that formed earlier in the history. So</p> <p>9 you might have a fault that's formed during the</p> <p>10 tectonic orogeny that a hundred million later --</p> <p>11 million years later, another continental block</p> <p>12 comes and then slams into North America, and that</p> <p>13 fault moves again.</p> <p>14 But, again, being able to look at the</p> <p>15 microstructure and choose targets for dating to</p> <p>16 resolve those different events.</p> <p>17 Q Now, you mentioned you had worked out at</p> <p>18 the Chester dome. What have you -- what has been</p> <p>19 your experience out there?</p> <p>20 A I have a master's student currently</p> <p>21 working on the -- the eastern margin of the -- the</p> <p>22 dome, and also the southern portions, which</p> <p>23 technically some people call the Athens dome. But</p> <p>24 we're basically trying to refine the timing of the</p> <p>25 formation of that shear zone, the one I described</p>	<p style="text-align: right;">Page 101</p> <p>1 dating?</p> <p>2 A No, this is -- we're in -- in progress</p> <p>3 right now.</p> <p>4 Q I see. And we've used the term "dome" a</p> <p>5 lot. Can you describe for the record what a dome</p> <p>6 is?</p> <p>7 A Yeah. So, again, it relates to folding</p> <p>8 of the rocks. So, you know, there are layers</p> <p>9 of -- of rocks, say, and tectonic forces cause</p> <p>10 folding. And so the Chester dome is -- well,</p> <p>11 again, there's multiple events that have done</p> <p>12 this. There was first sort of intense north-south</p> <p>13 stretching, and then the Acadian orogeny resulted</p> <p>14 in this sort of east-west folding. So that's</p> <p>15 partly how -- why we have this long north-south</p> <p>16 structure. So...</p> <p>17 Q Now, on the second page of your CV,</p> <p>18 there's an area for Technical Expertise.</p> <p>19 A Mm-hmm.</p> <p>20 Q The first entry there refers to</p> <p>21 Nu Noblesse, MAP 216 and Micromass 5400 noble gas</p> <p>22 mass spectrometers for argon 40 and argon 39</p> <p>23 thermochronology.</p> <p>24 And again, are those tests or processes</p> <p>25 to date rock?</p>



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<p>1 A Yes.</p> <p>2 Q And I take it those are specific tests</p> <p>3 you would -- and those are the processes you</p> <p>4 enlisted, right?</p> <p>5 A I'm sorry?</p> <p>6 Q Are those specific testing devices or</p> <p>7 testing processes, rather, that you would use?</p> <p>8 A Yeah. These are magnetic sector, mass</p> <p>9 spectrometers, so that's -- yeah, how we're doing</p> <p>10 the isotopic analyses.</p> <p>11 Q Okay. Next one is Balzers Prisma</p> <p>12 QME 200, and that's another mass spectrometer?</p> <p>13 A Yes, that's a quadrupole mass</p> <p>14 spectrometer, so -- as opposed to taking up one of</p> <p>15 these large tables, it's more of a football-shaped</p> <p>16 item, but that is used, yes, specifically for that</p> <p>17 uranium-thorium-helium dating technique.</p> <p>18 Q Okay. Next is design, construction and</p> <p>19 maintenance of ultra-high vacuum extraction lines.</p> <p>20 A Yes.</p> <p>21 Q What does that involve?</p> <p>22 A That's the front end to my mass</p> <p>23 spectrometer. So there's actually argon in the</p> <p>24 air we're breathing right now, and so we have</p> <p>25 to -- we've built this stainless steel line that</p>	<p>1 Q And what are those used for?</p> <p>2 A For detailed elemental analyses. So you</p> <p>3 might want to look at the chemical zoning in</p> <p>4 minerals. You might want to measure absolute</p> <p>5 concentrations of different elements, because we</p> <p>6 can then use that information to do</p> <p>7 thermobarometry to determine the -- again, the</p> <p>8 pressures and temperatures of -- of the formation</p> <p>9 of a mineral that that records.</p> <p>10 Q Okay. The next one is secondary</p> <p>11 ionization mass spectrometry.</p> <p>12 A Yes.</p> <p>13 Q What does that involve?</p> <p>14 A So that's a different type of mass</p> <p>15 spectrometer where you basically ablate a sample</p> <p>16 with an ion beam. That ion beam basically drills</p> <p>17 a hole and ionizes material.</p> <p>18 So this is in situ work. So you might</p> <p>19 be making a 10 micron spot within a zircon grain,</p> <p>20 and then -- then those ionized atoms -- or they're</p> <p>21 ions at that point -- are analyzed, say, for</p> <p>22 uranium-lead isotopes.</p> <p>23 So it can be used for, again,</p> <p>24 radiometric dating or I've also used it for a</p> <p>25 technique related to the -- titanium concentration</p>
Page 103	Page 105
<p>1 is -- inside that envelope, stainless steel</p> <p>2 envelope, pressures are about 13 orders of</p> <p>3 magnitude lower than the pressure we're enjoying</p> <p>4 today, because we have to get all that background</p> <p>5 argon out of the system in order to be able to</p> <p>6 measure precisely what comes out of our samples.</p> <p>7 Q Then you list management of radioactive</p> <p>8 materials and isotopic inventories. Is that</p> <p>9 primarily argon?</p> <p>10 A Yes. In order to get to this argon 40,</p> <p>11 39, from that potassium-argon technique, we</p> <p>12 actually have to irradiate our samples with fast</p> <p>13 neutrons and a reactor.</p> <p>14 Q I see. Is that done under controlled</p> <p>15 conditions of --</p> <p>16 A Yeah, I mean, I'm not involved with</p> <p>17 the -- the nuclear reactor. That's a service</p> <p>18 that's provided to us, yeah.</p> <p>19 Q Yep. Other analytical experience, you</p> <p>20 have electron microprobe analyses. What does that</p> <p>21 involve?</p> <p>22 A So basically that's a scanning electron</p> <p>23 microscope that has WDS protectors that are</p> <p>24 higher -- generally higher precision detectors</p> <p>25 than the EDS or EDAX.</p>	<p>1 in quartz. Again, a thermometer or barometer-type</p> <p>2 technique.</p> <p>3 Q Have you ever used a scanning electron</p> <p>4 microscope to identify particular minerals?</p> <p>5 A Yes.</p> <p>6 Q What type of minerals?</p> <p>7 A I mean, it depends on what's -- what's</p> <p>8 on the menu in your rock, but -- well, the</p> <p>9 amphiboles, garnet, muscovite, biotite. Yeah, I</p> <p>10 mean --</p> <p>11 Q Okay. Next one, laser ablation</p> <p>12 inductively coupled mass spectrometry.</p> <p>13 A Yes.</p> <p>14 Q That's a mouthful.</p> <p>15 A Yeah. So that one you -- again, it's a</p> <p>16 mass spectrometer, a magnetic sector mass</p> <p>17 spectrometer, but in this case the -- the</p> <p>18 liberation of atoms from the sample is done</p> <p>19 generally with an excimer laser, so that's in the</p> <p>20 UV range of the spectrum. So very short</p> <p>21 wavelength, high energy laser that, again, can</p> <p>22 drill a spot into -- a 10, 15, 20 micron spot into</p> <p>23 a mineral grain so you can actually date different</p> <p>24 zones in minerals. So that -- that's used for</p> <p>25 uranium-lead dating of zircon, for example.</p>

<p>Page 106</p> <p>1 Q And the last one, just to make sure we 2 get them all, cathodoluminescence imaging? 3 A Yeah. So that's again using a scanning 4 electron microscope, but a cathodoluminescence 5 detector basically -- well, you can see different 6 things. Again, that was part what I used for the 7 titanium and quartz. So if you were looking at 8 quartz with that technique, zones in the mineral 9 that had higher titanium concentrations would show 10 up brighter, for example. So you could identify 11 zoning, and then identify -- use those maps of 12 zones to target where you would drill into either 13 with the ion beam or subsequent analyses. 14 THE REPORTER: Subsequent what? 15 THE WITNESS: Analyses, yeah. 16 BY MR. BURNS: 17 Q And the next entry in your CV is 18 consulting experience. And you list from 2007 to 19 present the work you've done for law firms for 20 J&amp;J; is that right? 21 A Yes. 22 MR. FROST: Objection to form. It's 23 2017. 24 MR. BURNS: Yeah, 2000 -- I said '7. 25 BY MR. BURNS:</p>	<p>Page 108</p> <p>1 are -- are sited, how they're bonded. 2 Q Mm-hmm. And how would you contrast that 3 with a petrologist? 4 A I'm generally looking at rock systems. 5 So rather than -- I mean, I certainly use 6 mineralogy in order to determine what minerals I'm 7 looking at, but then what I'm interested in, after 8 the mineral ID, is understanding the relationships 9 between different minerals. Because you might 10 have different assemblages in a rock that, again, 11 record different parts of that rock's history. 12 So, yeah, using mineralogy and mineral 13 structures, and again, I also get into the 14 structural geology side, but it's -- it's really 15 trying to understand the -- the formation and the 16 evolution of rocks, but what they record in terms 17 of geologic and tectonic processes. 18 Q I hand you what we'll mark as 19 Exhibit 10, Dr. Webb. 20 (Webb Exhibit No. 10 was marked 21 for identification.) 22 MR. FROST: Thank you. 23 BY MR. BURNS: 24 Q Now, is this your bio on the University 25 of Vermont system?</p>
<p>Page 107</p> <p>1 Q 2017 to the present, right? 2 A Yes. 3 Q Okay. I almost snuck that one past your 4 counsel, but I failed. 5 Have you done any other consulting 6 experience for -- in litigation? 7 A No. 8 Q Okay. Have you done any other 9 consulting experience for industry? 10 A No. Not consulting, no. 11 Q Okay. Do you consider yourself a 12 mineralogist? 13 A I certainly use mineralogy, so, I mean, 14 there's kind of a spectrum of expertise out there. 15 So I would describe myself as a -- as a 16 petrologist rather than a mineralogist, but I 17 certainly do have some expertise in mineralogy. 18 Q What's -- what's the difference between 19 those two? 20 A Well, most typically, if someone 21 describes themselves as a mineralogist, then -- 22 for example, the faculty member in our department, 23 he is an expert in the structures of apatite 24 crystals, and so is looking to determine, yeah, 25 the mineral structure where different elements</p>	<p>Page 109</p> <p>1 A It looks like it, yes. 2 Q Okay. And similar to what we've been 3 discussing, on the back page it lists your areas 4 of expertise and a researcher in tectonics and 5 thermochronology, correct? 6 A Yes. 7 Q All right. And under "Teaching 8 Research," there are a couple of things I wanted 9 to understand a little more fully. 10 First, in the first sentence it says: 11 "I am a field-based geologist." 12 What is a field-based geologist? 13 A Well, in that -- in many cases I'm 14 actually out in the field making structural 15 measurements, collecting oriented samples. That 16 kind of depends on the nature of -- of the 17 question that I'm trying to address, but it means 18 that I have a skill set that allows me to do that 19 as needed. 20 Q And what is that skill set? 21 A Well, the ability to recognize different 22 rock types in the field, the ability to recognize 23 and document structures, to make the appropriate 24 measurements. For example, the orientation of 25 foliations, or we also have lineations. Minerals</p>



<p style="text-align: right;">Page 110</p> <p>1 can be elongated or pebbles can be stretched, for  2 example. All this relates again to the structural  3 evolution of -- of the rocks.  4 Q All right. Now, in the next paragraph  5 it says you teach courses in geochronology,  6 petrology, microstructural analysis and tectonics.  7 And then, "In the classroom and in  8 practice, my students and I integrate analytical  9 data with observations at microscopic to  10 continental scales to try and understand how rocks  11 and regions evolve in space and time, and the  12 tectonic processes that shape them."  13 Did I read that correctly?  14 A Yes.  15 Q Okay. Now, when you refer to  16 "integrating analytical data with observations,"  17 what -- what are you referring to there?  18 A Well, it -- it depends on, again, the --  19 the specific study at hand, but again, I -- in my  20 work, let's say if I want to date a mineral and  21 we -- the mass spectrometer spews out some  22 information that we calculate an age from, that  23 age is only as good as my ability to interpret  24 what it means.  25 So that means that I have to understand</p>	<p style="text-align: right;">Page 112</p> <p>1 Q No, fair enough. And really I'm just  2 saying that you described a pretty unique, I  3 think, field-based skill set, one that maybe I  4 wish I had. I would love to be able to look at a  5 hillside and -- and take an instant view of the  6 rocks there and how they fit into the structure.  7 But what I was getting at is those  8 field-based skills allow you to put the rock or  9 mineral you're examining into that context, the  10 context that's found in the field; is that right?  11 A Yes. I mean, it's also a skill set that  12 allows me to work with others. So a lot of the  13 analyses done in my lab are people who have  14 brought samples to us, and so in those cases, I'm  15 generating ages for them, but need to be heavily  16 involved in helping them interpret it.  17 So that field-based skill set also  18 allows me to ask them the appropriate questions to  19 get at that interpretation or give them advice in  20 advance about sampling strategies they might want  21 to employ.  22 Q Okay. In your professional career, have  23 you ever conducted any research on -- aside from  24 the litigation context, on talc as a mineral?  25 A Not specifically focused on it, no.</p>
<p style="text-align: right;">Page 111</p> <p>1 the context of the mineral I dated in the rock. I  2 have to understand the context of that rock in an  3 outcrop. I need to understand the context of that  4 outcrop in the -- sort of the map scale.  5 And so we're integrating the -- the  6 isotopic data. We're integrating the observations  7 of the minerals and the mineral assemblages, and  8 their relationship to deformation, coupled with  9 field measurements.  10 Again, it depends on the study what --  11 what all is at play, but also, you know,  12 integrating this with the existing literature out  13 there, which generally drives the nature of the  14 question.  15 Q Right. And I'm going to assume your  16 field-based skill set assists in that process by  17 allowing you to observe the minerals, rocks in  18 question in the area in which they occur, and  19 juxtaposed against other formations or other rocks  20 or minerals, right?  21 MR. FROST: Objection to form.  22 THE WITNESS: Yeah, in part. But  23 again -- yeah, I'm sorry, I think I lost the  24 thread there. It was a long one.  25 BY MR. BURNS:</p>	<p style="text-align: right;">Page 113</p> <p>1 Q And same question with respect to  2 asbestos.  3 A No.  4 Q Okay. How does a petrologist differ  5 from a geologist?  6 A Well, there are geologists who are  7 entirely focused on the fossil record or they  8 might be really an expert in a certain kind of  9 structural geology. So geology is more broad  10 about, you know, the study of the earth and -- and  11 rocks, whereas petrology, again, is really looking  12 at the mineral assemblages and the mineral  13 textures to get at how did that rock initially  14 form and what are the processes that's altered it  15 since its formation.  16 Q So you're not a professional geologist,  17 I would assume.  18 A How do you define "professional  19 geologist"?  20 Q Or a geologist generally.  21 A Oh, I'm definitely a geologist.  22 Q Okay. So the greater subsumes the  23 lesser or the smaller.  24 A Petrology is a specific -- more specific  25 area of geology.</p>

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1 Q Of geology. Okay. Bad question. I  
2 appreciate it.

3 A Well, I -- yeah.

4 Q Have you ever published any peer-  
5 reviewed articles on asbestiform amphiboles in  
6 talc?

7 A No.

8 Q Have you ever presented on that topic in  
9 any capacity?

10 A No.

11 Q Have you ever published any peer-  
12 reviewed articles on the methodological approaches  
13 for the identification of asbestiform amphiboles  
14 in talc?

15 A No.

16 Q Have you ever presented on that topic?

17 A No.

18 Q Have you ever -- in the context of -- in  
19 the journal context, have you ever served as a  
20 reviewer?

21 A Yes.

22 Q Okay. Have you ever reviewed any  
23 articles or other materials on any issues  
24 involving asbestos in talc?

25 A Not asbestos specifically. I mean,

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1 example. I'm also aware of the Kerrigan thesis  
2 that looked at experiments in which they were  
3 seeing if they could grow asbestiform talc. So,  
4 yeah.

5 Q Putting aside the litigation context,  
6 have you ever participated in any discussions or  
7 fora or conferences involving those topics  
8 relating to asbestos in talc?

9 A No, not specific to them, no.

10 Q Have -- have you personally ever  
11 identified any asbestiform amphibole materials in  
12 a talc sample?

13 A No.

14 Q Have you ever examined any talc samples  
15 for that purpose?

16 A No, not for that purpose, no.

17 Q Have you ever examined any talc samples  
18 generally?

19 A Yes.

20 Q For what purpose?

21 A General petrology. I mean, if we're  
22 talking about rocks with talc in them, then we've  
23 seen some of that in the rocks from China and  
24 Papua, New Guinea, I think, but also in the  
25 petrology collection for teaching, putting

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1 there's been talc in rocks in papers that I've  
2 reviewed, but --

3 Q Okay. Specifically about the talc or --

4 A No. I mean, you know, again, that's  
5 part of an assemblage that's being interpreted in  
6 the context of the assemblage, et cetera.

7 Q Have you conducted any work with  
8 graduate students on any issues involving asbestos  
9 in talc?

10 A No.

11 Q Are you aware of any student thesis or  
12 dissertations on any issue involving asbestos in  
13 talc?

14 MR. FROST: Objection to form.

15 THE WITNESS: Am I --

16 BY MR. BURNS:

17 Q Aware.

18 A Aware?

19 Q Mm-hmm, generally.

20 A Yes.

21 Q Okay. And what's your general  
22 awareness?

23 A Well, I know -- I mean, some of the  
24 papers I've cited have come out are first authored  
25 by students who worked with Mickey Gunter, for

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1 together labs, et cetera.

2 Q Okay. Do you plan to offer any opinions  
3 in this case regarding the appropriate technique  
4 for examining cosmetic talc for the presence of  
5 asbestos?

6 A No.

7 Q Does your department possess a  
8 transmission electron microscope?

9 A The department does not. There's one in  
10 the medical school.

11 Q What about -- same question for a  
12 scanning electron microscope.

13 A There's one in the -- the medical  
14 school, and there's a new one coming this spring.  
15 I'm a co-PI on an NSF grant that was funded to  
16 allow UVM to purchase an SE/SEM instrument.

17 Q You said co-PI. What is a PI?

18 A Co-principal investigator. So there was  
19 a lead PI out of the physics department, and then  
20 I'm one of, say, five PIs on the grant.

21 Q I see. Have you ever been involved in  
22 research or work designed to investigate the  
23 presence of asbestos materials in any geologic  
24 formation?

25 A Not specifically for that purpose, no.

<p style="text-align: right;">Page 118</p> <p>1 MR. BURNS: I think we're at a lunch  2 stopping point.  3 MR. FROST: Yeah, 12:45, sounds about  4 right.  5 MR. BURNS: All right. Great.  6 THE VIDEOGRAPHER: Going off the record  7 at 12:41.  8 (Lunch recess.)  9 THE VIDEOGRAPHER: We're back on the  10 record at 2:00 p.m.  11 BY MR. BURNS:  12 Q Good afternoon, Dr. Webb.  13 Dr. Webb, we are painfully close to  14 checking off the qualifications box on this --  15 this little sketch I made.  16 Just one general question that I was  17 hoping you could describe for us. When you go out  18 into the field to collect samples, what process do  19 you generally do when you go out there? What are  20 you looking for? Can you describe that generally?  21 A Yeah, I mean, it depends on what's known  22 and documented for the region already. So that --  23 you usually build off of the existing knowledge  24 base. But -- so usually we're looking for fresh  25 outcrops with 3D exposure so that you can actually</p>	<p style="text-align: right;">Page 120</p> <p>1 in the lab and, say, make -- cut the rock relative  2 to a specific orientations.  3 Q And by orientations, are you referring  4 to sort of how it was oriented in the ground  5 before you took it so that you know where north,  6 south, you know, up, down is?  7 A Uh, yeah, it depends. I mean, you know,  8 so if -- if this is a rock and these pages are a  9 planar fabric in the rock, the foliation will  10 often cut perpendicular to the foliation so that  11 you see the --  12 Q The layers.  13 A -- the layering rather than just looking  14 at one plane in the rock. If there is a  15 lineation, that usually relates to the  16 deformations, so the transport direction of one  17 piece of rock relative to a lower piece. And  18 often we'll -- if that's present, we'll cut  19 perpend- -- sorry, parallel to that, because  20 that's how we would observe the rotation of  21 minerals that might tell us the way the fault was  22 moving. Or --  23 Q Okay. Thank you.  24 Now, you mentioned you would look for  25 fresh outcrops or 3D exposure. What do -- what do</p>
<p style="text-align: right;">Page 119</p> <p>1 see something, rather than just a moss-covered  2 rock surface, for example.  3 Again, to make observations about the --  4 the rock types, any observations that can made --  5 be made about the mineralogy in detail, but it  6 depends on the size of the minerals in -- in the  7 rocks. Again, looking to make observations and  8 document structural orientations, again about the  9 planar or linear elements that might be present in  10 a rock as a function of its deformation history.  11 So, I mean, those are -- are generally  12 the -- the sort of categories of -- of  13 observations, yeah.  14 Q Now, when you take the specimen, how do  15 you physically do that? Are you chipping off a  16 specimen? Are you picking it up off the ground?  17 I guess it really depends.  18 A I don't usually rely on things that are  19 on the ground, because you can't. I've left  20 plenty of rocks places where they didn't originate  21 from.  22 So -- so usually it's a hammer and  23 chisel, and most often I'm working with oriented  24 samples. So we would measure a feature and mark  25 it in the field, and that way we can reorient it</p>	<p style="text-align: right;">Page 121</p> <p>1 you mean by 3D exposure?  2 A Well, again, it's this idea that in  3 order to make these -- what we would call  4 kinematic observations relate -- how things are  5 rotating, you need a rock exposure that allows you  6 to look at an exposure that's perpendicular to the  7 foliation and parallel to the lineation.  8 In other words, you could -- if  9 something was rolling like that (demonstrative),  10 you could --  11 Q Yeah.  12 A -- you could see that as opposed to it  13 coming down the barrel at you. So that 3D aspect  14 is important for getting those certain  15 perspectives at times.  16 Q What type of sites do you look at or  17 look for to find that, you know, fresh outcrops or  18 3D exposure? You had mentioned a road before.  19 A Yeah, so road cuts are -- are often our  20 best window into the rocks, or perhaps in rivers.  21 You know, yeah, I've certainly been in quarries  22 before, et cetera, but --  23 Q Mines?  24 A If they're aboveground, I mean, yeah.  25 I've never been in an underground mine.</p>

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1 Q Okay. Now, once you take the actual  
2 sample, I assume that you are taking it back to  
3 the lab to perform certain tests or examinations  
4 upon it. Right?

5 A Yes. Usually we take it back to the --  
6 to the department, and there is a rock-cutting  
7 facility, so we'll cut those oriented chips out of  
8 the rock to send away to have thin sections made,  
9 petrographic thin sections.

10 Q And then what do you do with the  
11 petrographic thin sections?

12 A I look at them under a petrographic  
13 microscope, polarized light microscope, to make  
14 mineral identification, to observe the textural  
15 relationships between minerals. That, again,  
16 might relate to relative ages or metamorphic  
17 reactions that might be frozen or captured in a  
18 sample, and also the microstructural observations  
19 about, say, shear sense. As I said, the vorticity  
20 or the rotation of -- of minerals that might tell  
21 us about the type of faulting or deformation that  
22 was occurring. And then in the case of the  
23 geochronology, selecting appropriate rocks to  
24 target for dating.

25 Q And that's really been the focus of your

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1 And that will take us to the efforts you  
2 made in preparing to give your opinions in this  
3 case. And I'm going to get to those specific  
4 opinions a little bit later, hopefully not too  
5 much later, recognizing it is the afternoon.

6 What was your charge in this case? What  
7 were you asked to do?

8 A I was asked to study and -- and provide  
9 an explanation of the petrological processes that  
10 are associated with the high purity talc deposits.  
11 So, again, you know, these pressure, temperature,  
12 bulk composition type questions.

13 Of course, a specific question I was  
14 asked to address is what is the relationship or  
15 not of -- of asbestos to -- to the talc deposits  
16 at issue. Yeah.

17 Oh, as well, and part of that charge, of  
18 course, was to read and respond to the -- the  
19 reports of Drs. Cook and Krekeler. And also if  
20 there was information that I had or was able to  
21 synthesize on -- on, again, sort of at the mineral  
22 structure scale. The differences, for example, in  
23 the chemical resistance or the -- of, say,  
24 asbestiform amphiboles versus non-asbestiform  
25 amphiboles.

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1 particular research is ultimately getting to that  
2 last point, the dating of those rocks, right?

3 A Not exclusively, no.

4 Q How not exclusively?

5 A Because I've had some projects where  
6 there's been no geochronology, and it's been more  
7 about the petrology, again understanding the  
8 temperature and pressure conditions. So, again,  
9 it just depends on what's known already and what  
10 the new questions are.

11 Q I see. And I take it during those steps  
12 of the micro- -- pardon me.

13 During those steps in the lab, you are  
14 carefully recording each of these observations; is  
15 that right?

16 A Yeah. I mean, again, it depends on what  
17 the -- the nature of the project is. But, yes, we  
18 make a record of the -- the mineralogy, the  
19 structures, et cetera, yeah.

20 Q How do you make a record of where the  
21 rock was sourced?

22 A Generally, we take GPS coordinates  
23 associated with the sampling locations.

24 Q Well, I think we can safely cross  
25 qualifications off our list.

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1 Q Mm-hmm. Can you describe in general  
2 terms the methodology you employed in reaching and  
3 rendering your opinions in this case?

4 A Yeah. So, I mean, I -- I really used  
5 the same approach that I would approach any aspect  
6 of my science, whether it's writing a paper or a  
7 peer review. But, again, to try and do an  
8 extensive search of the peer-reviewed literature,  
9 and also -- I mean, in that search I found also  
10 USGS reports, as we've discussed earlier today.  
11 And really to look in -- in detail, and, again, I  
12 mentioned that I tried to really dig into the  
13 primary citations, who were the first people to  
14 look at these rocks, what did -- you know, what  
15 did they see, and try and confirm things that  
16 had -- were then included in -- in later summary  
17 type papers that I also saw.

18 But, again, what I'm really concerned is  
19 as a petrologist is the system of rocks, and so,  
20 you know, not only was my interest related to  
21 anything written about the talc bodies themselves  
22 but also the surrounding rocks. Because in order  
23 to understand the history that the -- the talc  
24 ores experienced, you have to dig into rocks  
25 around them of different bulk compositions.

<p style="text-align: right;">Page 126</p> <p>1 Different rocks have the potential to record  2 different aspects, in part because they might have  3 a different strength or they might have minerals  4 that are more stable over a broader range of  5 pressure and temperature conditions.  6 So this was all part and parcel in terms  7 of trying to understand, as I was describing,  8 the -- the structure of -- of the dome in the case  9 of Vermont, you know, how differences between the  10 core and those mantling units where the -- the  11 talc mines are -- are located, the details of the  12 pressure, temperature, deformation histories.  13 So, again, I wasn't only just looking at  14 the talc ores, I was also looking at the reports  15 of asbestos in Vermont and really trying to  16 understand the petrology of those systems. Again,  17 relative timing, pressure, temperature, conditions  18 of formations, differences maybe that in fluid  19 chemistry that might impact how metamorphic  20 processes play out.  21 So, again, my synthesis was a range of  22 scales from sort of, you know, all of Vermont and  23 its cumulative tectonic history to, you know,  24 reading works that described observations made in  25 petrologic thin sections, you know, again, down at</p>	<p style="text-align: right;">Page 128</p> <p>1 before me.  2 So if there -- if I feel like there is a  3 big gap in that information, that would drive that  4 need to go out into the field to collect samples,  5 and I just didn't arrive at that position in this  6 case.  7 BY MR. BURNS:  8 Q Well, let me -- let me focus on the  9 Argonaut mine for a moment. Are you aware of any  10 peer-reviewed work or any other reports relating  11 to samples taken in the Argonaut mine relative to  12 talc and asbestos?  13 A The Argonaut mine. Well, other than, I  14 think it's, the Buzon thesis where there were some  15 samples that were analyzed by, I think it's,  16 Marian Buzon during her Ph.D., I haven't seen  17 anything in -- in the published literature about  18 the samples from that mine except for her work, I  19 believe.  20 Q So, for example, you spoke about gaps in  21 the record. Why is that not a gap in the record  22 you would be interested in?  23 A Well, again --  24 MR. FROST: Objection to form.  25 THE WITNESS: Again, I mean, basically</p>
<p style="text-align: right;">Page 127</p> <p>1 the micron scale.  2 Q Okay. Well, one of the things that  3 surprise me a bit in reading your report, just to  4 be frank, is that the methodology you just -- just  5 described and employed in this case differs from  6 some of the science you have conducted before as a  7 field-based geologist in that you did not  8 apparently go out to, for instance, the Vermont  9 sites and take samples, and bring those samples  10 back to your -- to your laboratory to determine  11 whether asbestos may be contained in the  12 underlying rock, what that relationship might be  13 to the talc.  14 Is that a fair description of what you  15 did in this case?  16 MR. FROST: Objection to form.  17 THE WITNESS: I mean, I think the  18 description of what I did is what I just outlined  19 in the prior question. I mean, it's true I did  20 not sample the -- the talc -- rocks from the talc  21 mines, but again, I mean, as I've been describing,  22 when I go out into the field, those objectives  23 are -- are really driven by what I understand from  24 the -- in this -- like in the case of Vermont, the  25 decades of work of geologists and petrologists</p>	<p style="text-align: right;">Page 129</p> <p>1 the Vermont talc mines that we're interested in  2 are in a pretty specific zone around mantling that  3 Chester dome, and so bracketing that history  4 are -- is work done -- I mean, really the most  5 detailed study out there is that Sanford 1982  6 paper, and Sanford sampled from, I think, three  7 different locations in Vermont and also in  8 Massachusetts. But in his study, he had samples  9 from the Newfane mine and the Grafton mine, which  10 basically bracket in PT space the -- the Argonaut,  11 Hamm and Hammondsville mines, and so I was able to  12 look at pretty gory detail in his -- in his paper.  13 I was able also to compare that with  14 the -- the Pooley study, who sampled different  15 rock types around the mine, which, again, was of  16 interest to me because I like to work with rock  17 systems. And he had detailed petrographic data  18 and descriptions in there, again photomicrographs,  19 the kind of -- the kind of data that I regularly  20 work with.  21 And basically -- and also there was the  22 Robinson -- or, sorry, the Robinson study from the  23 Frostbite mine. And so, I mean, I feel like these  24 rock bodies are -- are pretty tightly bracketed by  25 these studies, and -- and I felt like I saw the</p>



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1 information I needed in those works.  
 2 BY MR. BURNS:  
 3 Q So we're sitting here today in  
 4 Burlington, Vermont. How far approximately is the  
 5 Argonaut mine from here?  
 6 A Oh, I guess two-and-a-half hours or so.  
 7 Q Driving by car?  
 8 A Yeah, driving.  
 9 Q Okay. And you realize that the -- the  
 10 allegations in this case center in part on the  
 11 plaintiffs' allegations that asbestos was a  
 12 constituent mineral in the rocks that were mined  
 13 at the Argonaut mine. Is that correct?  
 14 MR. FROST: Objection to form.  
 15 THE WITNESS: I'm sorry, can you repeat  
 16 the --  
 17 BY MR. BURNS:  
 18 Q Sure. Just asking you, you realize that  
 19 the allegations in this case center in part on  
 20 claims that asbestos was a constituent of the  
 21 material that was mined at Argonaut.  
 22 A Yeah.  
 23 Q Okay. Did you ever ask to go to the  
 24 Argonaut mine?  
 25 A No.

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1 understanding, although you should correct me if I  
 2 don't, about this methodology you just described.  
 3 But I want to make sure that we capture and  
 4 exclude some -- some areas that I don't think fit  
 5 into it.  
 6 MR. BURNS: Oh, did I -- yeah, those are  
 7 two pages. Here.  
 8 BY MR. BURNS:  
 9 Q So I'm just going to ask you some  
 10 questions, and I will -- I'll mark this so I can  
 11 remember the answers.  
 12 So, Dr. Webb, have you ever worked in a  
 13 talc mine?  
 14 A No.  
 15 Q Have you ever designed any talc mine  
 16 operations?  
 17 A No.  
 18 Q Have you ever consulted on any talc mine  
 19 operations?  
 20 A No.  
 21 Q Have you ever designed any drill core  
 22 sampling protocols for talc mines?  
 23 A No.  
 24 Q Have you ever designed a blast hole  
 25 sampling protocol for a talc mine?

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1 Q Were you ever told that you couldn't go  
 2 to the Argonaut mine?  
 3 A No.  
 4 Q And is that true of the other two J&J  
 5 mines in Vermont?  
 6 MR. FROST: Objection to form.  
 7 THE WITNESS: Yeah, I mean Hammondsville  
 8 is -- is underwater. It's a pond. So -- and I'm  
 9 not sure about the Hamm. I think, you know,  
 10 underground mining wouldn't -- or shafts wouldn't  
 11 be able.  
 12 But, yeah, no, I didn't ask to go. I  
 13 wasn't told that I should go or couldn't go. I  
 14 was left to use my professional opinion about how  
 15 that played out.  
 16 BY MR. BURNS:  
 17 Q I'm going to put up on the screen what  
 18 I've marked as Plaintiffs' Demonstrative No. 2. I  
 19 will give you and your counsel a copy of it,  
 20 though, just so you can follow along.  
 21 (Webb Exhibit No. 18 was  
 22 subsequently marked for  
 23 identification.)  
 24 BY MR. BURNS:  
 25 Q I think I have a pretty good

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1 A No.  
 2 Q Have you ever designed an open pit  
 3 mining operation?  
 4 A No.  
 5 Q Ever designed an underground mining  
 6 operation?  
 7 A No.  
 8 Q Have you ever supervised or consulted on  
 9 the ongoing operation of a mine?  
 10 A No.  
 11 Q And I think I -- I think you've answered  
 12 this, but have you ever visited any of the J&J  
 13 talc mines in Vermont?  
 14 A No.  
 15 Q Is that also true of China and Italy?  
 16 A That's correct.  
 17 Q Have you ever conducted any field  
 18 observations at any talc mines?  
 19 A No.  
 20 Q Have you ever conducted any field  
 21 observations at any of the J&J talc mines?  
 22 A No.  
 23 Q Have you ever inspected any talc mines?  
 24 A No.  
 25 Q Or any J&J talc mines?

34 (Pages 130 to 133)

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1 A No.

2 Q Have you ever reviewed any petrographic  
3 maps from J&J talc mines?

4 A What do you mean by "petrographic maps"?

5 Q Well, similar to some of the maps that  
6 you included in your report but specific to in  
7 Vermont, Italy or Chinese mines?

8 A I mean, do you mean geologic maps?  
9 Because "petrographic" generally means  
10 observations made through a petrographic  
11 microscope. So petrographic maps to me would mean  
12 a map of a thin section.

13 Q I see. So that doesn't make a whole  
14 hell of a lot of sense.

15 A No.

16 Q All right. Fair enough. Well, I tell  
17 you what, we will scratch that one.

18 Have you ever reviewed any geologic  
19 map -- maps from a talc mine?

20 A Yes.

21 Q And what mine was that?

22 A There was -- in the Robinson, et al.,  
23 2006, report from the Frostbite mine.

24 Q Mm-hmm. Okay. How about any geologic  
25 maps from J&J talc mines?

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1 Q Same question with respect to J&J talc  
2 mines.

3 A Yes, that's --

4 Q Same answer?

5 A Yeah, yeah.

6 Q Have you ever inspected any core logs  
7 from a talc mine?

8 A No.

9 Q Ever inspected any core logs from the  
10 J&J talc mines?

11 A No.

12 Q Ever asked for any samples of J&J talc  
13 from the --

14 A No.

15 Q -- products in question?

16 A No.

17 Q I'm sorry. And that answer was "no"?

18 A Yes. Never asked for.

19 Q Okay. Have you ever taken any samples  
20 or rock specimens from a talc mine?

21 A No.

22 Q Or from the J&J mines in question?

23 A No.

24 Q Have you ever conducted any XRD on any  
25 J&J talc?

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1 A No.

2 Q Did you ask whether any were available?

3 A I didn't ask, no.

4 Q Okay. Ever review any mine planning  
5 maps from a talc mine?

6 A No.

7 Q Have you ever reviewed drill cores taken  
8 from a talc mine?

9 A No.

10 Q Have you ever seen the drill cores taken  
11 from any of the J&J mines at issue here?

12 A No.

13 Q Have you ever reviewed any mine planning  
14 maps from the J&J talc mines?

15 A No.

16 Q Ever analyzed any thin sections from  
17 cores removed from a talc mine?

18 A No.

19 Q Same question with respect to J&J talc  
20 mines.

21 A Yeah, no.

22 Q Have you ever seen the results of any  
23 analysis of thin sections from cores removed from  
24 a talc mine?

25 A From cores, no.

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1 A No.

2 Q What about PLM? We just talked about  
3 PLM a few minutes ago. Have you ever done that on  
4 any J&J talc?

5 A No, personally I have not conducted  
6 those studies.

7 Q Are you aware of any outside this  
8 litigation?

9 A Sorry, then we're on -- specifically on  
10 J&J talc?

11 Q Yes.

12 A And this is the bodies that are being  
13 mined for the cosmetic talc?

14 Q Yes.

15 A No.

16 Q Have you ever conducted any scanning  
17 electron microscopy on any talc?

18 A I've seen it, yeah.

19 Q Seen it, but have you conducted it  
20 yourself?

21 A Well, yes. I mean, again, not on the  
22 talc ores that we're -- we're discussing, but I've  
23 seen talc in rocks on the SEM while I've been --

24 Q So in other rocks.

25 A Yes.

35 (Pages 134 to 137)



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1 Q But not with respect to any J&J talc.  
2 A No.  
3 Q Have you ever conducted any transmission  
4 electron microscopy on any talc samples?  
5 A No.  
6 Q And that would be true of J&J talc  
7 samples?  
8 A That's correct.  
9 Q Have you ever seen test results from  
10 samples taken from the J&J talc mines?  
11 A Test -- what kind of test results?  
12 Q Test results with respect to asbestos or  
13 other contaminants.  
14 A No.  
15 Q Have you ever designed or supervised a  
16 beneficiation process for talc ore?  
17 A No.  
18 Q Have you ever published on talc deposits  
19 used to source J&J talc in Italy, Vermont or  
20 China?  
21 A No.  
22 Q And I think you answered this earlier,  
23 you've never published on asbestiform amphiboles  
24 in talc, have you?  
25 A No.

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1 Q And is that also true of asbestiform  
2 serpentines?  
3 A No -- I mean, you're correct, and the  
4 answer is no.  
5 Q Have you ever published on  
6 methodological approaches to differentiate  
7 asbestiform amphiboles and non-amphibole minerals  
8 in talc?  
9 A No.  
10 Q And have you ever personally identified  
11 any asbestiform amphiboles in talc?  
12 A No.  
13 Q All right. Thank you, Doctor.  
14 (Counsel conferring.)  
15 BY MR. BURNS:  
16 Q Now, recalling our discussion on your  
17 supplemental list earlier today, I noted that you  
18 had read the deposition and expert report of Ann  
19 Wylie.  
20 Have you ever discussed this case or  
21 your findings with Dr. Wylie?  
22 A No.  
23 Q Have you ever spoken to Dr. Wylie  
24 before?  
25 A Last summer, once I spoke to her on the

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1 phone, I think.  
2 Q Okay. And what was that about?  
3 A I was curious where I could access some  
4 of her data on some of the -- the studies she's  
5 compiled or done, so the WebLink distributions,  
6 et cetera.  
7 Q Anything else in that conversation?  
8 A No.  
9 Q And was that the only conversation  
10 you've had with her?  
11 A That's the only time I've spoken with  
12 Ann Wylie.  
13 Q And was that in the context of  
14 discussions about asbestos, the conversation you  
15 had with her?  
16 A Yeah, so the -- I was looking for the --  
17 the data from both known -- you know, like the --  
18 the standards -- known asbestos versus known  
19 cleavage fragments.  
20 Q Did Dr. Wylie inform you that she was  
21 serving as an expert witness in this litigation?  
22 MR. FROST: Objection to form.  
23 THE WITNESS: It was prior to this, so  
24 neither of us knew.  
25 BY MR. BURNS:

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1 Q And you haven't spoken to her since your  
2 reports came out?  
3 A No.  
4 Q All right. I also noticed you had read  
5 the deposition and expert report of Mary Poulton,  
6 Dr. Mary Poulton.  
7 A Yes.  
8 Q Have you ever spoken to Dr. Poulton  
9 about asbestos in talc?  
10 A No.  
11 Q Any conversations with her whatsoever?  
12 A I've never met her or talked to her,  
13 yeah.  
14 Q And you also reviewed the expert report  
15 of Dr. Darby Dyar; is that right?  
16 A That's correct, yeah.  
17 Q And have you spoken with Dr. Dyar?  
18 A I met her in October of 2018, I believe,  
19 because she was invited to come give a seminar in  
20 our department.  
21 Q What was the seminar of?  
22 A It was related to her work on Mars, that  
23 program.  
24 Q Did you discuss anything with respect to  
25 asbestos or talc?

<p style="text-align: right;">Page 142</p> <p>1 A Not in great detail. I mean, I -- I</p> <p>2 took her to lunch, and we were having a</p> <p>3 conversation about the general paths of our -- our</p> <p>4 careers, and so we understood that we were both</p> <p>5 working with J&amp;J lawyers. But, again, that was</p> <p>6 prior to this case, and we didn't go into any</p> <p>7 details.</p> <p>8 Q Any specific conversation about asbestos</p> <p>9 and the talc in J&amp;J mines?</p> <p>10 A No.</p> <p>11 Q And going back to your conversation with</p> <p>12 Dr. Wylie, why were you interested in the data you</p> <p>13 were asking her about?</p> <p>14 A Because -- well -- yeah, so I was just</p> <p>15 doing general consulting, meaning I was doing some</p> <p>16 research to bolster my understanding of the topic,</p> <p>17 and, you know, occasionally I was asked to respond</p> <p>18 to a document or a paper. And so I had seen some</p> <p>19 of Dr. Longo's reports, and so there was an</p> <p>20 analysis that -- in one of his reports that</p> <p>21 related to the size distributions of -- of</p> <p>22 structures he was measuring with -- with the TEM.</p> <p>23 And so I was curious about that topic and wanted</p> <p>24 to explore it further on my own.</p> <p>25 Q And who provided you those reports?</p>	<p style="text-align: right;">Page 144</p> <p>1 again, looking at a data -- a large dataset, what</p> <p>2 were the --</p> <p>3 Q Okay. And did you reach any</p> <p>4 conclusions?</p> <p>5 MR. FROST: I was going to say --</p> <p>6 THE WITNESS: Yeah, this is --</p> <p>7 MR. FROST: -- I'm going to caution you</p> <p>8 to the extent that -- we're now reaching into</p> <p>9 consultancy, which has nothing to do with her work</p> <p>10 here.</p> <p>11 I'm just going to caution her, you know,</p> <p>12 obviously any communications you've had with</p> <p>13 lawyers during the consultancy and any work</p> <p>14 product that you created during the consultancy,</p> <p>15 I'm going to instruct you not to answer on that.</p> <p>16 But if it's something that you drew yourself, you</p> <p>17 know, sort of separately from what you were</p> <p>18 working with the lawyers on, you know, that you</p> <p>19 can answer.</p> <p>20 THE WITNESS: Pardon me. I have an</p> <p>21 eyelash attacking my eyeball.</p> <p>22 BY MR. BURNS:</p> <p>23 Q That's okay. Do you need to take a</p> <p>24 break or --</p> <p>25 A I'll be fine.</p>
<p style="text-align: right;">Page 143</p> <p>1 A Those would have come from Jonathan</p> <p>2 Cooper.</p> <p>3 Q And who's Mr. Cooper?</p> <p>4 A He's with Tucker &amp; Ellis.</p> <p>5 Q So after receiving that data, what did</p> <p>6 you do?</p> <p>7 A I -- I basically -- I mean, with Ann's</p> <p>8 data or ultimately with the online datasets that</p> <p>9 they've published, I was able to bring that into</p> <p>10 Excel, and so I was exploring different methods of</p> <p>11 plotting the data, aspect ratio versus width or</p> <p>12 width versus lengths or, you know, the variety of</p> <p>13 ways, log, normal, just -- not -- excuse me.</p> <p>14 Pardon me. So, yes, it was sort of an exploration</p> <p>15 in plotting methods to see what seemed to be most</p> <p>16 meaningful.</p> <p>17 Q And what do you mean by "most</p> <p>18 meaningful"?</p> <p>19 A Well, I mean, in particular, looking at</p> <p>20 Ann's data, cleavage fragments versus known</p> <p>21 documented asbestos, seeing if there was a</p> <p>22 plotting method where you could see a clear</p> <p>23 distinction in populations.</p> <p>24 Q I see.</p> <p>25 A I mean, not in a single particle, but,</p>	<p style="text-align: right;">Page 145</p> <p>1 Yeah, I -- honestly, I haven't reviewed</p> <p>2 that in preparation for this. It's not part of</p> <p>3 the opinions I'm -- or I offered in my report. So</p> <p>4 I'd rather not comment on that without having</p> <p>5 refreshed my memory of those graphs.</p> <p>6 MS. O'DELL: If the data has been</p> <p>7 provided to Dr. Webb, we would request on the</p> <p>8 record that the data from Dr. Wylie be provided to</p> <p>9 us. I will formalize that request after the</p> <p>10 deposition, but I think we're entitled to it if</p> <p>11 she has reviewed it.</p> <p>12 MR. FROST: Again, I think she just said</p> <p>13 she didn't consider it as any part of this</p> <p>14 opinion, so I actually -- I will lodge an</p> <p>15 objection to that. And moreover, I think she</p> <p>16 testified that she had a link to online data</p> <p>17 sources that she looked at.</p> <p>18 So to the extent that you are</p> <p>19 insinuating she was provided data by Ann Wylie, I</p> <p>20 think that is other than what the record reflects</p> <p>21 here.</p> <p>22 MS. O'DELL: I think the record is quite</p> <p>23 clear, and regardless of that, it was not</p> <p>24 disclosed --</p> <p>25 MR. FROST: And --</p>

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<p>1 MS. O'DELL: And if it's available</p> <p>2 publicly, that's one thing, but we have to know</p> <p>3 that she's been provided that data. And so we</p> <p>4 would request that it be --</p> <p>5 MR. FROST: And I guess I'm just failing</p> <p>6 to understand why we would have to produce you</p> <p>7 data that has obviously nothing to do with this</p> <p>8 engagement. You can send a letter, but, you know,</p> <p>9 obviously we object to it.</p> <p>10 MS. O'DELL: We will let the court</p> <p>11 decide about that.</p> <p>12 MR. FROST: That's fine.</p> <p>13 But again, I think she's made it very</p> <p>14 clear this has absolutely nothing to do with what</p> <p>15 she's been engaged to do.</p> <p>16 MS. O'DELL: Please don't coach the</p> <p>17 witness.</p> <p>18 MR. FROST: Please don't what?</p> <p>19 THE REPORTER: I couldn't hear you.</p> <p>20 MS. O'DELL: Please don't coach the</p> <p>21 witness.</p> <p>22 MR. FROST: I'm not coaching at all.</p> <p>23 I'm responding to your statement on the record.</p> <p>24 BY MR. BURNS:</p> <p>25 Q What was -- what was the form of the</p>	<p>1 A I'm familiar with the name, but I've</p> <p>2 never met or talked or communicated with her.</p> <p>3 Q You mentioned Mickey Gunter earlier?</p> <p>4 A Yes.</p> <p>5 Q Is that right?</p> <p>6 What is your relationship with Mickey</p> <p>7 Gunter?</p> <p>8 A Well, shortly after I came to UVM, he</p> <p>9 had a -- a Marsh Fellowship, I think is what they</p> <p>10 call it, but it's basically an honorary visiting</p> <p>11 professorship. So he's -- it might have been</p> <p>12 2009, around that time, that he was in our</p> <p>13 department maybe for a couple of weeks at a time</p> <p>14 throughout the -- the year. So that's when I met</p> <p>15 him.</p> <p>16 Q I see. And have you continued a</p> <p>17 friendship or professional relationship with him</p> <p>18 since?</p> <p>19 A I haven't talked to him since that March</p> <p>20 Fellowship, so not in eight years or something</p> <p>21 like that or -- yeah.</p> <p>22 Q Have you communicated with him by e-mail</p> <p>23 or any other means?</p> <p>24 A No.</p> <p>25 Q No. Dr. Webb, I think we can mark off</p>
Page 147	Page 149
<p>1 Longo reports that you had at the time?</p> <p>2 MR. FROST: Objection to form.</p> <p>3 THE WITNESS: The form of the Longo -- I</p> <p>4 mean, they were PDF documents that kind of</p> <p>5 mimicked the format of -- of this. So...</p> <p>6 BY MR. BURNS:</p> <p>7 Q And this was the summer of 2018?</p> <p>8 A I would have to -- that's a -- I mean,</p> <p>9 my best guess for the general time frame, but I</p> <p>10 don't remember details.</p> <p>11 Q And do you recall whether they were</p> <p>12 taken from litigation or --</p> <p>13 A Oh, they were -- yeah. I mean, they</p> <p>14 were expert reports, so...</p> <p>15 Q Okay. Do you know Dr. Brooke Mossman?</p> <p>16 A I've met her once, yeah, or twice now.</p> <p>17 I ran into her in the parking lot. So...</p> <p>18 Q Have you had any conversations with her</p> <p>19 about this case?</p> <p>20 A No.</p> <p>21 Q Have you had any conversations with her</p> <p>22 about asbestos in talc?</p> <p>23 A No, not specifically.</p> <p>24 Q Do you know a Dr. Shukla, I think in her</p> <p>25 department?</p>	<p>1 preparation.</p> <p>2 A Very good.</p> <p>3 Q One left.</p> <p>4 MR. BURNS: Should we take a short</p> <p>5 break?</p> <p>6 THE WITNESS: Yeah. Fill my water</p> <p>7 glass.</p> <p>8 THE VIDEOGRAPHER: Going off the record</p> <p>9 at 2:42 p.m.</p> <p>10 (Recess.)</p> <p>11 THE VIDEOGRAPHER: We're back on the</p> <p>12 record at 3:10 p.m.</p> <p>13 BY MR. BURNS:</p> <p>14 Q Welcome back, Dr. Webb.</p> <p>15 Dr. Webb, were you aware that -- that</p> <p>16 Dr. Mickey Gunter serves as an expert witness for</p> <p>17 J&amp;J?</p> <p>18 A I am aware of that, yes.</p> <p>19 Q How did you become aware of it?</p> <p>20 A I mean, I knew in general of his</p> <p>21 involvement as an expert witness from when he</p> <p>22 visited UVM long ago, but -- I suppose like the</p> <p>23 details of his working for J&amp;J came out sometime</p> <p>24 during the consulting. I mean, seeing documents,</p> <p>25 et cetera.</p>

<p style="text-align: right;">Page 150</p> <p>1 Q All right. Dr. Webb, at long last we've</p> <p>2 made it to the report section.</p> <p>3 MR. BURNS: Are you okay?</p> <p>4 MR. FROST: Yeah. I just kicked the</p> <p>5 table pretty hard.</p> <p>6 MR. BURNS: That's no fun.</p> <p>7 BY MR. BURNS:</p> <p>8 Q So I'd like to direct you to, I believe,</p> <p>9 Exhibit 1. And is this a true and correct copy of</p> <p>10 your expert report?</p> <p>11 A It appears so, yes.</p> <p>12 Q All right. And did you prepare this</p> <p>13 report yourself?</p> <p>14 A I did, yes.</p> <p>15 Q Did you write every word of it?</p> <p>16 A I did, yes.</p> <p>17 Q Now, one of the terms that appears</p> <p>18 throughout your report -- and we'll get to the</p> <p>19 certain instances of it, but we've also -- I've</p> <p>20 also heard you mention it today -- is you've</p> <p>21 emphasized, I believe you call it, high purity</p> <p>22 talc or cosmetic grade talc deposits.</p> <p>23 A (The witness nods.)</p> <p>24 Q Can you explain what you mean when</p> <p>25 you're using that term?</p>	<p style="text-align: right;">Page 152</p> <p>1 Italy and China.</p> <p>2 Q Mm-hmm. Would it be fair to say then</p> <p>3 that that high purity grade of talc deposit is one</p> <p>4 that is, for lack of a better term, pure enough to</p> <p>5 attract the interest of industrial or cosmetic</p> <p>6 purposes?</p> <p>7 MR. FROST: Objection to form.</p> <p>8 THE WITNESS: Yeah, I mean, they</p> <p>9 wouldn't be interested in something that wasn't</p> <p>10 rich in talc and, yeah, relatively high purity.</p> <p>11 BY MR. BURNS:</p> <p>12 Q So let's say you had a deposit where for</p> <p>13 every pound of talc you extracted, there was</p> <p>14 another pound of waste. Would that fall into that</p> <p>15 category for you?</p> <p>16 MR. FROST: Objection to form.</p> <p>17 THE WITNESS: Yeah, I don't know. I</p> <p>18 mean, that kind of gets beyond my area of -- of</p> <p>19 expertise and distinction, I think. Because,</p> <p>20 yeah, I'm not an expert in the mining process,</p> <p>21 and --</p> <p>22 That eyelash came back. Sorry.</p> <p>23 BY MR. BURNS:</p> <p>24 Q Sure. Oh, no.</p> <p>25 I guess another way to look at it -- and</p>
<p style="text-align: right;">Page 151</p> <p>1 A Well, I -- I guess I'm making the</p> <p>2 distinction between a rock that has talc in it or</p> <p>3 a rock that may have abundant talc in it versus</p> <p>4 something that is talc rich enough that it would</p> <p>5 be of interest for the mining companies.</p> <p>6 Q And is that really the trigger whether</p> <p>7 it's -- whether industrial use -- it's capable of</p> <p>8 industrial use or extraction?</p> <p>9 MR. FROST: Objection to form.</p> <p>10 BY MR. BURNS:</p> <p>11 Q I don't want to put words in your mouth.</p> <p>12 A Yeah.</p> <p>13 Q I'm just really trying to tease out what</p> <p>14 you mean by that.</p> <p>15 A Well, I mean, I think there are</p> <p>16 definitions for "cosmetic grade talc," and I know</p> <p>17 that it reflects -- maybe after a beneficiation,</p> <p>18 the purity levels that are -- you're able to</p> <p>19 attain coupled with some other geochemical</p> <p>20 requirements and in the absence of asbestos.</p> <p>21 But I think, you know, one of the</p> <p>22 distinctions I'm trying to make is a rock that has</p> <p>23 talc in it versus something that has undergone</p> <p>24 such extreme degrees of metasomatism that we</p> <p>25 arrive at the deposits that we have in Vermont and</p>	<p style="text-align: right;">Page 153</p> <p>1 really, again, I'm just trying to understand --</p> <p>2 but for this purpose, the only mines you were</p> <p>3 looking at were in your view high purity deposits</p> <p>4 because they were used as mines for the talc</p> <p>5 industry. Is that fair?</p> <p>6 MR. FROST: Objection to form.</p> <p>7 THE WITNESS: Well, I mean, they're --</p> <p>8 so obviously it boils down to my opinion about the</p> <p>9 mines that were used for the talc that was used in</p> <p>10 talcum powders, and -- but I was actually looking</p> <p>11 at a larger body of literature to kind of</p> <p>12 understand the systems and -- and sort of bracket</p> <p>13 again these conditions where these rocks formed.</p> <p>14 BY MR. BURNS:</p> <p>15 Q Just to be sure that I don't miss it</p> <p>16 if there is a distinction, the J&amp;J talc mines --</p> <p>17 what we've been referring to as the J&amp;J talc mines</p> <p>18 are all in view -- in your view, high purity</p> <p>19 deposits; is that right?</p> <p>20 A Well, yes. Deposits from which cosmetic</p> <p>21 grade talc can be derived.</p> <p>22 Q Okay. And so we've talked about those</p> <p>23 three mines in Vermont. We've also mentioned some</p> <p>24 other mines around there, the Johnson mine,</p> <p>25 Rainbow mine. Would you consider those high</p>

<p style="text-align: right;">Page 154</p> <p>1 purity talc deposits as well?</p> <p>2 MR. FROST: Objection to form.</p> <p>3 THE WITNESS: Yeah. I mean, there may</p> <p>4 be zones of -- you know, so even the Newfane mine</p> <p>5 has high purity talc zone in it, but the Newfane</p> <p>6 mine, that zone is so thin, I think it wasn't</p> <p>7 economically viable. So it could include mines</p> <p>8 from which there is no active or was no active</p> <p>9 mining based on the economic viability of it.</p> <p>10 BY MR. BURNS:</p> <p>11 Q Okay. So I would like you to turn to</p> <p>12 page 1 of your report, which contains the</p> <p>13 executive summary.</p> <p>14 A Okay.</p> <p>15 Q So as its title indicates, I take it</p> <p>16 this section summarizes your opinions that you are</p> <p>17 prepared to testify to in this litigation.</p> <p>18 A Yes. An overview of them, yes.</p> <p>19 Q Okay. I'd like to start with</p> <p>20 subparagraph A in Section 1.0 of the executive</p> <p>21 summary.</p> <p>22 So subparagraph A begins with the</p> <p>23 statement: "Plaintiffs' experts' reports fail to</p> <p>24 appropriately synthesize key data and observations</p> <p>25 available in the peer-reviewed scientific</p>	<p style="text-align: right;">Page 156</p> <p>1 report today?</p> <p>2 MR. FROST: Objection to form. Outside</p> <p>3 of the scope of this witness's opinions.</p> <p>4 THE WITNESS: Can -- can I answer or --</p> <p>5 MR. FROST: Yes.</p> <p>6 THE WITNESS: Sorry.</p> <p>7 MR. FROST: Unless I specifically</p> <p>8 instruct you not to answer, you can answer.</p> <p>9 THE WITNESS: Okay. I mean, yeah, my</p> <p>10 experience -- for example, anthophyllite and talc</p> <p>11 have very similar geochemistry -- or, sorry,</p> <p>12 chemistries that, in general, EDS is not</p> <p>13 sufficient to distinguish the two. And -- and he</p> <p>14 never provided quantitative data based on the EDS</p> <p>15 analyses, and so, you know, there are -- are</p> <p>16 issues there that I -- I take issue with.</p> <p>17 I would also say that I'm not an expert</p> <p>18 in SAED, so I'm not going to go down that road at</p> <p>19 all.</p> <p>20 Some things that are shown in the TEM</p> <p>21 images look much more like cleavage fragments to</p> <p>22 me than asbestos fibrils or bundles, but -- but I</p> <p>23 guess -- so it's my general reaction to the use of</p> <p>24 the EDS data, and -- yeah, and the -- and the</p> <p>25 assertion that some of these amphiboles that</p>
<p style="text-align: right;">Page 155</p> <p>1 literature that are pertinent to understanding the</p> <p>2 issues in this litigation."</p> <p>3 Did I read that correctly?</p> <p>4 A Yes.</p> <p>5 Q Okay. What -- first of all, what</p> <p>6 plaintiffs' experts' reports are you referencing</p> <p>7 there? Is it Dr. Cook and Dr. Krekeler?</p> <p>8 A Correct.</p> <p>9 Q Okay. Any others?</p> <p>10 A No.</p> <p>11 Q Okay. It's not Dr. Longo?</p> <p>12 A No.</p> <p>13 Q Do you have any opinions with respect to</p> <p>14 Dr. Longo's work?</p> <p>15 A Not that I'm offering in this report or</p> <p>16 today, no.</p> <p>17 Q Have you -- do you intend to offer</p> <p>18 opinions with respect to Dr. Longo in the future?</p> <p>19 MR. FROST: Objection to form.</p> <p>20 THE WITNESS: I mean, I think it depends</p> <p>21 on the questions that are -- are asked. But that</p> <p>22 really wasn't my charge to respond to his report,</p> <p>23 and so, yes, I did read it, but --</p> <p>24 BY MR. BURNS:</p> <p>25 Q Do you have any criticism of Dr. Longo's</p>	<p style="text-align: right;">Page 157</p> <p>1 presumably are identified in there based on the</p> <p>2 other analyses are -- are asbestos.</p> <p>3 BY MR. BURNS:</p> <p>4 Q Okay. Anything else?</p> <p>5 A No.</p> <p>6 Q All right. You next say that Dr. Cook</p> <p>7 and Dr. Krekeler, the plaintiffs' experts you</p> <p>8 refer to, failed to appropriately synthesize key</p> <p>9 data.</p> <p>10 What data did you have -- do you have in</p> <p>11 mind there?</p> <p>12 A Well, I mean, the -- the details of the</p> <p>13 geology of Vermont, the details of the</p> <p>14 metamorphism recorded by the rocks in the region</p> <p>15 of -- of interest, they basically present broad</p> <p>16 generalizations from some of these papers that</p> <p>17 present generalizations, and, you know, try to</p> <p>18 make analogies between rocks in the southern</p> <p>19 Appalachians, and I think the mines in Vermont are</p> <p>20 a very different beast than the ultramafic bodies</p> <p>21 that are -- are elsewhere throughout the orogen.</p> <p>22 Q Okay. What about Italy and China?</p> <p>23 A Yeah, so with China, I didn't see them</p> <p>24 zeroing in on the -- the Guangxi mines that were</p> <p>25 actually used. There -- I know Krekeler, I think</p>



<p style="text-align: right;">Page 158</p> <p>1 specifically more than Cook, at least what I</p> <p>2 remember offhand, is that, you know, a lot of his</p> <p>3 discussion included mines that were thousands of</p> <p>4 kilometers away off in the Shandong Peninsula that</p> <p>5 were totally irrelevant.</p> <p>6 So, again, it's the lack of detail</p> <p>7 related to petrological evolution in the immediate</p> <p>8 vicinity of -- of the mines from which the talc</p> <p>9 was derived.</p> <p>10 Q And you next question the observations</p> <p>11 available in the peer-reviewed scientific</p> <p>12 literature that are pertinent to understanding the</p> <p>13 issues in this litigation.</p> <p>14 Is your use of data and observations</p> <p>15 there somewhat synonymous, or are you drawing a</p> <p>16 distinction?</p> <p>17 A I mean, there -- yeah. I guess it's</p> <p>18 redundant in a sense.</p> <p>19 Q Not criticizing.</p> <p>20 A Yeah.</p> <p>21 Q Okay. Just trying to understand whether</p> <p>22 there is a unique distinction there.</p> <p>23 You reviewed, and I can't remember the</p> <p>24 precise number, quite a few articles and reports</p> <p>25 with respect to the geology of Vermont. Is that</p>	<p style="text-align: right;">Page 160</p> <p>1 forming, they see information that is very</p> <p>2 clearcut that they are not part of the same event.</p> <p>3 And that is, that the asbestos forms during</p> <p>4 late -- presumably in the tectonic orogeny when</p> <p>5 these rocks are at low temperatures, low</p> <p>6 pressures, they're -- these ultramafic bodies,</p> <p>7 which were, you know, basically the rock collage</p> <p>8 when it was kind of assembled at that time for a</p> <p>9 large part, especially the bodies where the</p> <p>10 asbestos is documented.</p> <p>11 So in the late stages of the tectonic</p> <p>12 orogeny about 450 million years ago, that's when</p> <p>13 these ultramafic rocks are forming brittle</p> <p>14 fractures. Water rich fluids are interacting with</p> <p>15 them. Serpentinization is occurring. And that is</p> <p>16 when the chrysotile asbestos forms. And the few</p> <p>17 instances that are documented of tremolite</p> <p>18 asbestos are also part of that same event.</p> <p>19 Now, the talc, as I said before, forms</p> <p>20 during the Acadian orogeny, so that's 80, 90</p> <p>21 million years later, under very different</p> <p>22 conditions. And I would also say that the rocks</p> <p>23 from which the -- the cosmetic talc is derived in</p> <p>24 Vermont is in a different geologic belt than the</p> <p>25 asbestos-bearing rocks.</p>
<p style="text-align: right;">Page 159</p> <p>1 fair?</p> <p>2 A Yes.</p> <p>3 Q Okay. Do any of those reports stand out</p> <p>4 to you as particularly sound in terms of their</p> <p>5 methodology, their primary sourcing, et cetera?</p> <p>6 MR. FROST: Objection to form.</p> <p>7 THE WITNESS: Particularly sound? Well,</p> <p>8 certainly, as I mentioned before, the Sanford 1982</p> <p>9 article really is the -- the piece of literature</p> <p>10 out there that looked into the systems in which</p> <p>11 talc is forming in -- in these rocks. You know,</p> <p>12 it's really, again, kind of putting together the</p> <p>13 body of data.</p> <p>14 But I will say Chidester comes up.</p> <p>15 There -- there are a number of -- of articles that</p> <p>16 make this same statement, and this is what I think</p> <p>17 is key, is that -- again, there's a polyphase</p> <p>18 tectonic history. So we've got three big orogenic</p> <p>19 events that kind of build up the geology in</p> <p>20 Vermont and influence it.</p> <p>21 And the people who have looked at those</p> <p>22 rocks -- so Chidester said it, Sanford said it --</p> <p>23 those are the two that really come to mind -- is</p> <p>24 that when they look at the relationship between</p> <p>25 where asbestos is formed and where the talc is</p>	<p style="text-align: right;">Page 161</p> <p>1 But in any case, if -- you know, so</p> <p>2 the -- the Acadian orogeny event where the talc is</p> <p>3 forming is at much higher temperature conditions.</p> <p>4 The rocks are deforming ductilely. There's this</p> <p>5 intense metasomatism that's going on, and that is</p> <p>6 the diffusion of chemical elements across these</p> <p>7 rock boundaries that is basically changing the</p> <p>8 composition of the ultramafic rock to something</p> <p>9 that's much closer to the talc composition.</p> <p>10 That's why I have those weird triangle</p> <p>11 diagrams in my report to demonstrate that. Sorry,</p> <p>12 they're not weird to me, but I know they're odd to</p> <p>13 others, a non-petrologist. I'll clarify that.</p> <p>14 And so we really have, again, a</p> <p>15 different set of conditions. The fluids are water</p> <p>16 and carbon dioxide rich in the Acadian orogeny.</p> <p>17 And, again, there's no asbestos as far as I've</p> <p>18 been able to determine that are recorded in those</p> <p>19 rocks in any clearcut fashion, but, say, had</p> <p>20 chrysotile been present in the ultramafic bodies</p> <p>21 from which the talc formed, it would have been</p> <p>22 erased by that -- that metamorphic process.</p> <p>23 So this is why I say I don't see any</p> <p>24 documentation of it, nor were the conditions</p> <p>25 appropriate. Because, again, where it's been</p>

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1 documented, it's -- asbestos is forming under --  
2 in different places in space and time and under  
3 different conditions than the -- than the talc  
4 forms.  
5 BY MR. BURNS:  
6 Q Okay. So just to be clear, it's your  
7 opinion that you've not seen any evidence of  
8 asbestos in the J&J talc mines that we have been  
9 discussing, right?  
10 A That's correct.  
11 Q Okay. Is it your opinion that there is  
12 no evidence of asbestos in those J&J talc mines?  
13 MR. FROST: Objection to form.  
14 THE WITNESS: It's not been  
15 demonstrated to -- no evidence has been  
16 demonstrated to me in the -- in the literature or  
17 the reports that I've reviewed.  
18 BY MR. BURNS:  
19 Q Okay. Let me ask you a follow-on  
20 question then.  
21 Is it your professional opinion that it  
22 is impossible for asbestos to exist in the talc  
23 sourced from the J&J talc mines?  
24 MR. FROST: Objection to form.  
25 THE WITNESS: It's extremely unlikely.

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1 BY MR. BURNS:  
2 Q But not impossible?  
3 MR. FROST: Objection to form.  
4 THE WITNESS: Geologists don't like  
5 using the word "impossible," but I would be  
6 extremely surprised.  
7 BY MR. BURNS:  
8 Q Can you in your professional opinion  
9 imagine circumstances where the chrysotile or  
10 tremolite asbestos made its way into talc deposits  
11 and was not erased by that process you were  
12 describing?  
13 MR. FROST: Objection to form.  
14 THE WITNESS: Not in the local geology.  
15 BY MR. BURNS:  
16 Q Not in Vermont.  
17 A Not -- yeah.  
18 Q How about -- and, again, focusing on  
19 Vermont here. We'll get back to China and Italy.  
20 So focusing on Vermont, have you seen  
21 evidence of fibrous talc in the talc that was  
22 sourced from the J&J mines?  
23 MR. FROST: Objection to form.  
24 THE WITNESS: I've seen evidence of  
25 fibrous talc recorded in the thin section

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1 descriptions. Again, I wasn't looking at the  
2 finished products. So I don't want to offer  
3 opinions on those, but --  
4 BY MR. BURNS:  
5 Q You mean you haven't actually seen the  
6 thin sections. You're -- you've read descriptions  
7 of them in the findings. Is that what you're  
8 saying?  
9 MR. FROST: Objection to form.  
10 THE WITNESS: In the literature and  
11 reports that I reviewed, that's what I'm  
12 summarizing, yes.  
13 BY MR. BURNS:  
14 Q Do you have any opinion as to the -- as  
15 to whether the appearance of fibrous talc would be  
16 common in the talc sourced from the J&J mines?  
17 MR. FROST: Objection to form.  
18 THE WITNESS: It could be present.  
19 BY MR. BURNS:  
20 Q In sub- -- in substantial quantities?  
21 MR. FROST: Objection to form.  
22 THE WITNESS: I have no -- I mean, I  
23 think they are principally -- my understanding is  
24 they are principally looking for platy talc, but,  
25 you know, so in rock bodies dominated by that, you

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1 can't rule out the -- the local presence of a  
2 fibrous talc.  
3 BY MR. BURNS:  
4 Q So it could be present.  
5 A Yes. I mean, we know it forms from  
6 often -- I mean, a fibrous morphology again is the  
7 result of the way the metamorphic reaction  
8 proceeded, so those reactions are documented in  
9 these rocks. So, yes.  
10 Q Let's focus on China for a moment and  
11 the Guangxi mines. What is your -- is your  
12 opinion the same with respect to those mines as it  
13 is with the Vermont J&J mines?  
14 A Yeah. I mean, they formed in a  
15 different bulk composition and a different system,  
16 but at similar metamorphic grades and with similar  
17 principles at play. And once again, I never saw  
18 anything in the literature related to the local  
19 geology around those mines to support an assertion  
20 of the presence of asbestos.  
21 Q Did you see anything in the literature  
22 related to the local geology of those mines?  
23 A Yes.  
24 Q What was that?  
25 A Well, so -- I mean, I cite the papers

42 (Pages 162 to 165)

<p style="text-align: right;">Page 166</p> <p>1 that I -- I looked at. But basically that region  2 is -- is described in some detail in studies of --  3 and people who were again looking at the tectonic  4 evolution of the rocks, but -- say Yao, et al.,  5 2016, which is where the map figure is derived,  6 the Guangxi mine plots within that -- that mapped  7 area, and the formation of talc in those units is  8 described in the literature.  9 Lee, 1979, actually documents that in  10 detail and explores the -- the metamorphic  11 reactions involved in generating the -- the talc.  12 So, yes, there is -- there are  13 descriptions of the local geology in -- of the  14 units that are bracketing the talc bodies and from  15 which the talc was derived or formed.  16 Q But none of those are specific to the  17 Guangxi mine; is that right?  18 MR. FROST: Objection to form.  19 THE WITNESS: Oh, well, I mean it is  20 specific to them. This is the area that the --  21 the mines are located. It relates to the units  22 that are documented in the -- the IMS documents  23 that describe the mines. So...  24 BY MR. BURNS:  25 Q I guess I -- maybe I did not phrase that</p>	<p style="text-align: right;">Page 168</p> <p>1 different when you're talking about the -- the  2 genesis of the talc itself.  3 Q What was the nature of the underlying  4 rock? Was it ultramafic or chloritic?  5 MR. FROST: Objection to form. Where?  6 BY MR. BURNS:  7 Q In China.  8 A Yeah. So, again, dolomitic marbles  9 juxtaposed next to these mafic igneous rocks that  10 underwent greenschist facies metamorphism. So,  11 again, that's in that range of, say, 500 -- around  12 500 degrees C.  13 So, yeah, in some of the mafic units, I  14 mean, there -- yeah, there's -- there's chlorite  15 present locally. They -- they don't describe the  16 same blackwall zones, and that's again because the  17 rock types are different. So...  18 Q And what is a blackwall zone?  19 A It refers -- well, so in -- in Vermont,  20 it refers to the -- the zone that's right at the  21 contact of the ultramafic rocks and the country  22 rock, and so there are chlorite and actinolite  23 rich domains. In some cases, also biotite, which  24 would truly give it the black color. But they  25 would be very dark rocks in comparison to the talc</p>
<p style="text-align: right;">Page 167</p> <p>1 quite the way I should have.  2 But, again, those descriptions are on a  3 regional level, right? They're not specific to  4 any particular mine or samples from that mine,  5 correct?  6 MR. FROST: Objection to form.  7 THE WITNESS: They're specific to the  8 local geology around those mines.  9 BY MR. BURNS:  10 Q Is the local geology similar to the  11 geology found here in Vermont?  12 A I mean, it's a -- it's a different --  13 it's a different continent. It's got a different  14 history. In this case you have dolomitic marbles  15 that were juxtaposed next to mafic igneous rocks  16 that underwent a tectonic episode 400-something  17 million years ago, where there was ductile  18 deformation associated with the faults that are  19 shown on -- on the map. And you had silica rich  20 fluids present during metamorphism. And so,  21 again, it's a case of metasomatism, a case of  22 chemical exchange.  23 So some elements of the process are the  24 same or similar, but the -- the details of the  25 geology and the rock types are -- are quite</p>	<p style="text-align: right;">Page 169</p> <p>1 rich rocks that they're juxtaposed with.  2 Q I'll hand you what we'll mark as  3 Exhibit 11.  4 MR. BURNS: I think we got these from  5 your materials. Is that where they came from?  6 MR. FROST: Yeah.  7 MS. O'DELL: Yeah.  8 MR. FROST: Yep, that's fine. I know  9 what this is.  10 MR. BURNS: Okay.  11 (Webb Exhibit No. 11 was marked  12 for identification.)  13 BY MR. BURNS:  14 Q Is that the document, Exhibit 14, that  15 you relied on for your opinions with respect to  16 China?  17 A It's one of the documents.  18 Q Okay. Now, that is in Chinese. Do you  19 read Chinese?  20 A I know a few characters.  21 Q Okay. Is there an English translation  22 that you relied on or --  23 A I asked counsel if -- if that service  24 would be available for this document, and it was  25 provided.</p>

<p style="text-align: right;">Page 170</p> <p>1           However, even prior to that, though, I</p> <p>2           was able to correlate the -- the map unit names</p> <p>3           that are not in -- in Chinese, and so able to</p> <p>4           deduce -- I don't have it. I'd have to refer to</p> <p>5           the series of documents to point out, but, you</p> <p>6           know, the geologic layer in the map that was</p> <p>7           associated with the -- the talc formation.</p> <p>8           And there are also some chemical</p> <p>9           reactions that are written in English characters,</p> <p>10          and so I can read -- read those. But -- but, yes,</p> <p>11          the details of -- that are hidden in the Chinese</p> <p>12          characters, I relied on the translation for that.</p> <p>13          MR. BURNS: And, Mr. Frost, can you</p> <p>14          provide that?</p> <p>15          MR. FROST: I'm sure I can find it. It</p> <p>16          might even be in the box.</p> <p>17          MS. O'DELL: Do you know how we would</p> <p>18          identify it? Is it --</p> <p>19          MR. FROST: It would say "Lee." I mean,</p> <p>20          I think I could find it in electronic form, and</p> <p>21          I'll e-mail it to you.</p> <p>22          MS. O'DELL: Okay.</p> <p>23          MR. BURNS: Thank you.</p> <p>24          MR. FROST: That might be the easiest</p> <p>25          way to dig it out.</p>	<p style="text-align: right;">Page 172</p> <p>1           these deposits directly. There the talc formed</p> <p>2           early in the history of -- of the rocks. Because,</p> <p>3           again, I mean, the -- this -- this region has,</p> <p>4           again, a very complicated history represented by</p> <p>5           hundreds of millions of years, and, you know,</p> <p>6           they're in the Alps today, but that is a Cenozoic</p> <p>7           collision orogenic event that built up those</p> <p>8           mountains.</p> <p>9           But the -- the people, again, who</p> <p>10          studied the minerals present, their textural</p> <p>11          relationships relative to one another, the</p> <p>12          different structural elements and their relative</p> <p>13          age relationships, all demonstrate -- I mean, it's</p> <p>14          pretty much a consensus out there that the talc</p> <p>15          formed in this pre-carboniferous basement. So,</p> <p>16          you know, the constraint in the literature is</p> <p>17          around 355 million years or -- or prior.</p> <p>18          And the mineral assemblages, again, not</p> <p>19          the talc specifically but in the rocks, the system</p> <p>20          of rocks in which the talc is embedded record</p> <p>21          evidence for metamorphism at up to like 575</p> <p>22          degrees C or so, 600 degrees C, during an older</p> <p>23          orogenic event. And then talc being very stable,</p> <p>24          unless you achieve temperatures much higher</p> <p>25          than -- I mean, close to 700 degrees or higher,</p>
<p style="text-align: right;">Page 171</p> <p>1           MS. O'DELL: Eric, can you do the</p> <p>2           translation?</p> <p>3           MR. FROST: He might be able to. Alex.</p> <p>4           MS. O'DELL: Alex.</p> <p>5           BY MR. BURNS:</p> <p>6           Q    You said that was one of the documents.</p> <p>7           What was the -- what were the others?</p> <p>8           A    Yao, et al. Zhao, et al. Yao, et al.,</p> <p>9           2016. Zhao, et al., 2018.</p> <p>10          MS. O'DELL: Do you mind spelling those,</p> <p>11          please?</p> <p>12          THE WITNESS: Yao, Y-A-O, et al. And</p> <p>13          Zhao, Z-H-A-O.</p> <p>14          MS. O'DELL: Thank you.</p> <p>15          BY MR. BURNS:</p> <p>16          Q    What about the peer-reviewed literature</p> <p>17          allowed you to reach the same conclusions with</p> <p>18          respect to Italy?</p> <p>19          A    Well, so in Italy, there's actually more</p> <p>20          direct description of the, I'm going to say,</p> <p>21          Fontane, and it's probably pronounced differently</p> <p>22          in Italy. I'm better with the Chinese</p> <p>23          pronunciations than the Italian.</p> <p>24          So there are a number of publications,</p> <p>25          albeit it a small number, but that do describe</p>	<p style="text-align: right;">Page 173</p> <p>1           that talc basically went for a ride down a</p> <p>2           subduction zone and came back up.</p> <p>3           So that's why I'm familiar with the area</p> <p>4           generally, because it's another case of one of</p> <p>5           these ultra high pressure terrains like I studied</p> <p>6           for my Ph.D.</p> <p>7           But, again, it's a mesomat- -- well,</p> <p>8           there's kind of two theories out there in terms of</p> <p>9           either the talc formed from a sepiolite horizon,</p> <p>10          which has a chemical formula very similar to talc.</p> <p>11          So that transformation would be just a function of</p> <p>12          sepiolite having gotten hot enough to react to</p> <p>13          form talc.</p> <p>14          But the relationship between -- of the</p> <p>15          talc bodies basically being at this interface of,</p> <p>16          again, carbonate rocks and mafic gneisses suggest</p> <p>17          to me, rather, that it was again a case of</p> <p>18          metasomatism, a chemical exchange across rock</p> <p>19          boundaries during high temperature metamorphism</p> <p>20          that allowed the transformation of volumes of rock</p> <p>21          to basically move towards that talc composition.</p> <p>22          So, again, it's the integration of what</p> <p>23          people have seen in terms of mineral assemblages,</p> <p>24          textural relationships, relative age</p> <p>25          relationships, et cetera, that led me to my</p>

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<p>1 opinion.</p> <p>2 Q And what are your principal sources for</p> <p>3 your Italian theories -- or, sorry, opinions?</p> <p>4 MR. FROST: Objection to form.</p> <p>5 THE WITNESS: So could -- those papers</p> <p>6 that I cite here, Cadoppi, et al., 2016; Sandrone,</p> <p>7 et al., 1990; Sandrone and Zucchetti, 1988.</p> <p>8 There's Del Greco and Pelizza, 1984.</p> <p>9 BY MR. BURNS:</p> <p>10 Q Are there any that are not cited in your</p> <p>11 report?</p> <p>12 A I don't believe so. I mean, if they</p> <p>13 are, they would be in the reliance, but I think</p> <p>14 this is the key body of the papers.</p> <p>15 Q Oh, Exhibit 14, that Chinese document,</p> <p>16 how were you able to locate it or find it?</p> <p>17 A I don't remember whether it was with</p> <p>18 GeoRef or using Google Scholar, but I -- you know,</p> <p>19 searching again the scientific literature, and --</p> <p>20 specifically for -- so this is why I asked for</p> <p>21 the -- the Imerys China mine documents was -- I</p> <p>22 used those to get the formation names at the mines</p> <p>23 of interest, and then I searched the literature</p> <p>24 for those formation names.</p> <p>25 The -- the Imerys documents also had</p>	<p>1 You know, part of, I guess, what I'm</p> <p>2 responded to are summary papers like Van Gosen,</p> <p>3 et al., 2004, that at kind of a surficial level,</p> <p>4 if you read that paper, you would come away with</p> <p>5 the impression that it was highly probable.</p> <p>6 But, again, when you dive into the</p> <p>7 details of the geology and you really start to</p> <p>8 understand how these very unique bodies formed,</p> <p>9 there's just -- there's just nothing that would</p> <p>10 lead you to that association.</p> <p>11 Q What about Doll? Anything in Doll that</p> <p>12 you consider not scientifically sound or --</p> <p>13 A The Doll, 1961?</p> <p>14 Q I think that's the right year.</p> <p>15 MR. BURNS: Do you have that handy?</p> <p>16 MS. O'DELL: It may be '65.</p> <p>17 THE WITNESS: I'm not sure I cited that</p> <p>18 or --</p> <p>19 BY MR. BURNS:</p> <p>20 Q It's in your materials. Let's take a</p> <p>21 look. '61.</p> <p>22 MS. O'DELL: '61.</p> <p>23 MR. BURNS: '61.</p> <p>24 THE WITNESS: I mean -- sorry.</p> <p>25 BY MR. BURNS:</p>
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<p>1 coordinates of the mines in some cases, and so I</p> <p>2 used those geographic coordinates to, for example,</p> <p>3 determine that I was looking at the same geology</p> <p>4 that's shown in this map figure.</p> <p>5 Q Okay.</p> <p>6 A Or, rather, that the geology shown in</p> <p>7 that map figure described in those articles was</p> <p>8 relevant to the mines.</p> <p>9 Q So turning to subparagraph C on the</p> <p>10 first page of your report, you say: "There is no</p> <p>11 well-founded, scientifically sound evidence in the</p> <p>12 peer-reviewed scientific literature for an</p> <p>13 association of amphibole asbestos with the talc</p> <p>14 deposits of concern."</p> <p>15 So I think we've run through the</p> <p>16 literature you consider well-founded.</p> <p>17 Is there literature out there in the</p> <p>18 peer-reviewed scientific literature that you don't</p> <p>19 consider well-founded or scientifically sound that</p> <p>20 supports the association of amphibole asbestos</p> <p>21 with the talc deposits of concern?</p> <p>22 A I've never seen anything in the</p> <p>23 published peer-reviewed literature that implies</p> <p>24 specifically that there is asbestos in these --</p> <p>25 these talc mines.</p>	<p>1 Q Go ahead.</p> <p>2 A Is that the -- so is that the question,</p> <p>3 Doll 1961?</p> <p>4 Q Yeah, that's the question. I think it's</p> <p>5 '61. Mm-hmm.</p> <p>6 A Doll 1961 is a published bedrock map of</p> <p>7 Vermont.</p> <p>8 Q Mm-hmm.</p> <p>9 A So it is the version that existed prior</p> <p>10 to the update, which is Ratcliffe, et al., 9 -- or</p> <p>11 2011.</p> <p>12 So, yeah, some things have changed.</p> <p>13 There's been some new -- new mapping, some new age</p> <p>14 data that's come out, so, you know, things have</p> <p>15 shifted, but that was the state of knowledge at</p> <p>16 that time.</p> <p>17 Q Mm-hmm.</p> <p>18 MR. BURNS: What's that?</p> <p>19 Leigh, I think you said it was 20.</p> <p>20 MS. O'DELL: 20.</p> <p>21 MR. BURNS: Yeah.</p> <p>22 (Counsel conferring.)</p> <p>23 BY MR. BURNS:</p> <p>24 Q Oh, I see. I thought it was the</p> <p>25 statement of the geologist at the time.</p>



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<p>1 We're referring to bedrock geology of 2 the Woodstock quadrangle in Vermont by Chang, Ern 3 and Thompson. Are you familiar with that? 4 A Was that 1965 or thereabouts? I know I 5 made reference to one Chang article. 6 Q Judging by the font, 1965, you're right. 7 A Sorry. I'd just like to find that in my 8 report. 9 Q Sure. 10 MR. FROST: Did you say it was Chang, 11 C-H-A-N-G? 12 MR. BURNS: Yeah. 13 THE WITNESS: Right, I think this -- my 14 citation to it relates to the Five Corners mine. 15 BY MR. BURNS: 16 Q Okay. 17 A On page 21. 18 Q More broadly, is this an article that 19 you considered to be well-founded? Sound -- 20 scientifically sound? 21 A Well, it's -- I wouldn't say I would 22 venture an opinion on the entire body of that 23 document. I -- again, I looked at that 24 specifically with respect to Van Gosen's 2006 25 citation. Or maybe he -- no, I forget. Did he</p>	<p>1 if there were enough iron for actinolite to form. 2 I also, you know, basically then took a 3 subset of that figure to -- for just a smaller 4 demonstrative and a smaller version of the 5 chemographic diagram in the upper left. 6 Q Mm-hmm. Okay. 7 A But, otherwise, it's -- it's pretty -- 8 pretty similar. 9 Q Is this diagram -- and forgive me for 10 being confused on it -- but would this diagram be 11 accurate for the J&amp;J mines in Vermont? 12 A Actually, it would, because those 13 ultramafic bodies are extremely magnesium rich. 14 And so -- yeah, I mean, that ultramafic bulk 15 composition, based on the data that have been 16 published for a larger and more unaltered body in 17 Ludlow and Dover, would -- would plot where 18 that -- that purple triangle is. 19 THE REPORTER: That what? I'm sorry. 20 THE WITNESS: Sorry. Where the purple 21 triangle is in the diagram. 22 BY MR. BURNS: 23 Q Did you plot this for Italy or China? 24 A I did not. 25 Q Would it differ?</p>
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<p>1 actually even cite that and I came across it 2 myself? 3 Okay. So I found a reference to 4 chrysotile in the Five Corners mine in that -- 5 that document. But Van Gosen actually did not 6 include that one. 7 I mean, I don't -- I don't take issue, 8 you know, with -- 9 Q Okay. 10 A -- chrysotile at the Five Corners mine. 11 Q Any other criticisms of that article you 12 recall? 13 A Not that I think are -- no. 14 Q Let's turn to page 13. 15 And I'm looking at Figure 7. I believe 16 this is chemographic diagrams for the -- oh, 17 geez -- calcium oxide, silicon oxide, magnesium 18 oxide -- chemical system for calcareous and 19 ultramafic rocks modified from Winter, 2001. 20 Is that correct? 21 A Yes. 22 Q Okay. How was it modified? 23 A Well -- I think I added color. I also I 24 think added the position of actinolite, which 25 would plot similarly to tremolite in this system,</p>	<p>1 A Yeah, I mean, those again would be a 2 little bit more -- the general principle I'm 3 trying to -- to show here holds in the sense that 4 in order to make a talc ore, you have to have sort 5 of extreme metasomatic events to change the bulk 6 composition of the rock to something that is very 7 close to -- to talc. 8 So in principle, it fits, but in terms 9 of that, of that system, because it's limestones 10 and marbles juxtaposed next to schist, and then 11 mafic, but not ultramafic, the -- the chemical 12 components you would need to consider would be 13 slightly different. 14 Q How would it change the plotting? What 15 would be the effect? 16 MR. FROST: Objection to form. 17 THE WITNESS: Yeah, well, you would 18 probably need to combine some chemical components. 19 Again, this is -- this is assuming that, you know, 20 you've got these three components that are shown 21 at the apices of the triangle are dominating the 22 system. 23 So, depending on what those chemical 24 components would be, you would have different 25 minerals and minerals plotting in different</p>

<p style="text-align: right;">Page 182</p> <p>1 positions in that diagram compared to what they  2 are here.  3 BY MR. BURNS:  4 Q And do you have sufficient data for  5 Italy or China to plot something similar?  6 A No. And -- I mean, I could find that,  7 but again this -- the purpose of this was really  8 to try and illustrate the point that while you can  9 have talc in carbonate or ultramafic rocks, with a  10 variety of minerals in your sort of general  11 metamorphic rocks, it takes a special process to  12 make a talc ore.  13 So, you know, I didn't engage in an  14 analysis with this beyond that. It was meant more  15 to -- to try and illustrate a key concept.  16 Q Let's go back --  17 MS. O'DELL: Jack, would you please  18 provide White, 2001.  19 MR. FROST: If I have it.  20 MS. O'DELL: It's not --  21 THE WITNESS: It's a textbook.  22 MR. FROST: Oh, is that what it is?  23 THE WITNESS: It's a geology textbook.  24 MR. FROST: Yes. I don't have it, but  25 I'll see if we can do anything during a break.</p>	<p style="text-align: right;">Page 184</p> <p>1 MR. FROST: I'm done with winter.  2 MR. BURNS: That was for the "Game of  3 Thrones" fans in the audience.  4 BY MR. BURNS:  5 Q Going back to page 1 of your report.  6 In that subparagraph C, you say based on  7 your "reviews of the geology associated with the  8 applicable mines, and the pressure and temperature  9 histories recorded by the rocks, any amphibole  10 found in Johnson's Baby Powder and Shower to  11 Shower derived from the Fontane, southern Vermont,  12 and Guangxi talc mines would likely be incidental  13 actinolite or tremolite cleavage fragments from  14 non-asbestiform amphiboles, most likely derived  15 from the margins (blackwall zones) of the talc  16 deposits."  17 Is that correct?  18 A Yes.  19 Q Okay. What do you mean by "incidental  20 actinolite"?  21 A Well, that principally, except right  22 along the -- the margins of the blackwall, you  23 wouldn't expect actinolite to be present in the  24 main body of talc ore, because the bulk  25 composition isn't really appropriate for that.</p>
<p style="text-align: right;">Page 183</p> <p>1 MS. O'DELL: That would be -- that would  2 be good.  3 MR. FROST: Yeah, no promises, though.  4 I can't guarantee I can get it.  5 MS. O'DELL: Well, I mean if she is  6 relying on it, and it's something she has based a  7 figure in her report, then we requested those  8 materials. So I understand the issue, but if you  9 could work on it.  10 MR. FROST: As I said, I'll see -- I'll  11 see if we can --  12 MR. BURNS: And I think you're referring  13 to Winter, right?  14 THE WITNESS: Yes, Winter.  15 MR. FROST: I was going to say --  16 MS. O'DELL: Excuse me. Excuse me.  17 Winter.  18 MR. FROST: Winter, I've got a better  19 shot of finding, so at least I know what that is.  20 But I don't know if I can get it, but I'll see  21 what we can do during a break.  22 MR. BURNS: Winter is coming.  23 MR. FROST: That's right. Hopefully  24 not. Spring and summer are coming.  25 MR. BURNS: Thought I'd throw it out.</p>	<p style="text-align: right;">Page 185</p> <p>1 And tremolite, also you wouldn't expect  2 in great volumes in the talc itself, and that's  3 because calcium is an essential element in these  4 minerals.  5 And again, the chemistry that's reported  6 for the -- the Ludlow and Dover bodies, which are  7 our best proxy for the ultramafic protoliths, the  8 mantle rocks that we started with, really low  9 calcium levels, so -- whereas the metasedimentary  10 and metavolcanic wall rocks are -- are more  11 calcium rich, more iron rich. And so, you know,  12 that's where the blackwall -- the actinolite in  13 part -- by definition is part of the blackwall,  14 these actinolite zones.  15 So, I guess "incidental" would mean that  16 some accidental incorporation of -- of the  17 blackwall.  18 Q Meaning that the mining encompassed part  19 or all of that -- of one piece of the blackwall.  20 A Yeah. I mean, I don't -- again, I don't  21 know. Basically, it's like I can't come up with a  22 petrologic argument to say those should be present  23 in any abundance in the -- the talc that was the  24 desired mining product. So it's most likely  25 coming from the margins. But...</p>

<p style="text-align: right;">Page 186</p> <p>1 Q Okay. Is actinolite a regulated form of  2 asbestos?  3 MR. FROST: Objection to form.  4 THE WITNESS: Asbestiform actinolite is  5 one of the regulated minerals, yes.  6 BY MR. BURNS:  7 Q And you mentioned specifically tremolite  8 cleavage fragments; is that correct?  9 A Well, actinolite or tremolite cleavage  10 fragments.  11 Q Okay. So both -- both modified --  12 A Yeah, meaning that this actinolite, the  13 tremolite is not -- asbestiform did not grow in  14 that primary growth habit, and rather, could be  15 ablated or acicular or prismatic tremolite that --  16 I guess then if it's -- somehow in the talc  17 undergoes, you know, the beneficiation process,  18 so crushing and grinding and breakdown into  19 cleavage fragments.  20 Q So is it your testimony then that there  21 would be no asbestiform actinolite or tremolite in  22 the talc?  23 A That's -- yes, that's my testimony.  24 Q Okay. Let's turn to page 11. And to  25 Figure 6.</p>	<p style="text-align: right;">Page 188</p> <p>1 temperature conditions under which the talc ores  2 formed.  3 Q In all of the Fontane, southern Vermont  4 and Guangxi talc ores; is that right?  5 A Yeah. In general, there's some overlap  6 there. Guangxi would be more firmly in the  7 greenschist boundary; Vermont would be more in the  8 epidote-amphibolite facies, with the Fontane as  9 well.  10 Q Okay. So there's a note in your  11 description of Figure 6 that: "Conditions  12 favoring asbestos formation are generally  13 associated with low-temperature and/or  14 low-pressure conditions," and then you describe  15 the zeolite, prehnite, prehnite-pumpellyite --  16 A Yeah, prehnite-pumpellyite.  17 Q Pumpellyite. Thank you.  18 -- and hornfels facies, right?  19 A Yes.  20 Q Okay. And just so we are all on the  21 same page and we can look at the same thing for a  22 second, I'm going to circle each of those areas.  23 See if I get them all correctly. I've  24 tried to circle here the areas where conditions  25 favor asbestos formation. Did I capture them all?</p>
<p style="text-align: right;">Page 187</p> <p>1 So Figure 6 is a "Pressure-temperature  2 diagram modified from Winter (2001), showing in  3 gray the general boundaries of the different  4 metamorphic facies (for example, greenschist  5 facies) that represent conditions under which  6 certain combinations of minerals (i.e.,  7 equilibrium assemblages) are stable as a function  8 of a rock's bulk composition."  9 Is that right?  10 A Yes.  11 Q How was this modified from Winter?  12 A I added in -- I believe the reaction  13 curve for chrysotile and lizardite maximum  14 stability, and that was taken from Evans, 2004.  15 Q And that was the tremolite?  16 A That was the chrysotile --  17 Q Chrysotile. Sorry.  18 A -- and lizardite maximum stability, the  19 brown dashed curve at around 300 degrees C.  20 Q So Evans, 2004?  21 A Yes.  22 Q Okay.  23 A And then I also added the -- the green  24 roughly oval-shaped region that was meant to  25 encompass the -- the general range of pressure and</p>	<p style="text-align: right;">Page 189</p> <p>1 A Yeah. I mean, in terms of low  2 temperature, that could extend up to the -- the  3 blueschist facies.  4 Q Mm-hmm.  5 A I mean, the key thing is there, again,  6 low-temperature deformation tends to be more  7 brittle and -- and allow the -- the ability for  8 fractures to open, which is one of the -- the most  9 common site for asbestos to -- to form.  10 Q Okay. Now, is it --  11 MR. FROST: Just a -- I'm just going to  12 object to some of the circles. It seems different  13 than what's listed at the bottom of Figure 6.  14 MR. BURNS: And if it is, let me know.  15 THE WITNESS: The hornfels, I was just  16 speaking generally to the -- the high temperature,  17 low -- low pressure. So...  18 BY MR. BURNS:  19 Q So would it include the albite-epidote-  20 hornfels, which looks to be low pressure,  21 relatively low temperature or --  22 A Yeah. I don't have an issue with what  23 you circled. I mean --  24 MR. FROST: I just wanted the record to  25 be clear.</p>

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<p>1 MR. BURNS: Mr. Frost -- Mr. Frost does, 2 but -- 3 MR. FROST: But I just wanted to make 4 sure the record was clear. 5 MR. BURNS: All right. Fair enough. 6 BY MR. BURNS: 7 Q So you mention -- mentioned fractures. 8 And I believe you said that fractures are one of 9 the conditions where asbestos can form. Is that 10 correct, or something along those lines? 11 A Yes, most -- most commonly as those 12 cross fibers or slip fibers. 13 Q Mm-hmm. So, speaking generally and 14 recognizing -- well, strike that. 15 Not having your background and 16 expertise, I have some general questions about 17 this. 18 So it appears from this figure that the 19 talc in the Fontane and Vermont and Guangxi ores, 20 in your view, based on its -- based on I guess 21 that regional petrology and circumstances there, 22 would have formed at about, what, 500 degrees 23 Celsius and 0.6 GPA pressure; is that right? 24 A That's a good ballpark. 25 Q Okay. And the conditions for the</p>	<p>1 with depth because of the weight of the overlying 2 column of rocks, and so if you're at low 3 pressures, the rocks are a bit -- a bit weaker, 4 but you don't have that pressure that basically 5 fights against voids opening. 6 So the rocks either have to be low 7 temperature and brittle because of that or shallow 8 in the earth's crust to basically not have enough 9 weight down on you to -- to keep voids from 10 opening. 11 You know, whereas the -- the conditions 12 of metamorphism for the formation of talc, much 13 higher temperatures and, you know, 20 kilometers 14 deep. That's pretty deep in the continental 15 crust. And we know from people who have studied 16 the -- again, the structures that these were 17 undergoing ductile deformation at the time. 18 So it's just those geologic conditions 19 aren't -- that's why I say they aren't favorable, 20 aren't -- aren't amenable. 21 Q At the same time, right? Is that the 22 issue? 23 MR. FROST: Objection. 24 BY MR. BURNS: 25 Q It would be difficult to have the same</p>
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<p>1 creation of asbestos sort of surround that area, 2 but obviously at different pressures and different 3 temperatures. 4 Would minor variations in temperature or 5 in pressure, had they occurred, could those have 6 resulted in asbestos materials coming into the 7 same ores? 8 A I don't -- 9 MR. FROST: Object to form. 10 THE WITNESS: I don't believe so. 11 BY MR. BURNS: 12 Q And why? 13 A Well, again, when you're at the low 14 temperature end and rocks are -- would deform 15 brittly, again that's generally when fractures 16 could open. And because of the primary growth 17 habit of asbestiform fibers, they're basically 18 growing into -- into void spaces. So that's a 19 precondition, coupled with fluids that are 20 saturated and the chemical components from which 21 the asbestiform minerals would grow. 22 When you look at the -- when I say -- or 23 generally the hornfels conditions here, yeah, you 24 have higher temperatures, but you also have very 25 low pressures. And so rock strength increases</p>	<p>1 conditions exist at the same time for the creation 2 of both the asbestos materials and the talc ores. 3 Is that right? 4 MR. FROST: Object to the form. 5 THE WITNESS: Yeah, I mean, I would say 6 that, yes, at the time the talc was forming, the 7 conditions were not appropriate. 8 BY MR. BURNS: 9 Q Okay. Now -- but I believe we've 10 described circumstances where -- I'm thinking of 11 Italy where you said the talc may have formed 12 earlier in the continent's subduction zone, but 13 have survived the subduction. 14 Is it possible that -- are there 15 circumstances where asbestos could form at a later 16 time and under favorable circumstances where the 17 talc would remain solid, because it's a stable 18 mineral, but a fracture, for example, could lead 19 to the incorporation of asbestiform materials? 20 MR. FROST: Objection to form. 21 THE WITNESS: Well, I mean, I suppose we 22 could devise a hypothetical situation where the 23 conditions were all ripe for this to happen, but 24 there's no evidence that that's the case. 25 As I said, all asbestos in Vermont,</p>

<p style="text-align: right;">Page 194</p> <p>1 everybody has written about it, there's no  2 disagreement that that occurred, you know, 80  3 million years prior to the formation of the talc,  4 give or take a few million years.  5 And the conditions that postdated the  6 formation of the Italian talc in the Fontane mine  7 were way up here (indicating). So, I mean, maybe  8 similar in temperature, but much, much higher --  9 higher pressures. Yeah, they're back at the --  10 the surface today, but, you know, I think --  11 again, when asbestos forms, it's -- it's regional  12 conditions that allow that to occur, and so we'd  13 have other -- I would expect to see that  14 documented throughout the -- the geology. And I  15 just -- you know, I don't see any evidence for it.  16 BY MR. BURNS:  17 Q Turning to the Vermont example where the  18 asbestos formed before the talc, are fractures  19 again a potential explanation for migration of the  20 asbestos --  21 MR. FROST: Objection to form.  22 BY MR. BURNS:  23 Q -- subsequently?  24 A I've never heard of migration of  25 asbestos, so I don't know --</p>	<p style="text-align: right;">Page 196</p> <p>1 along that, and that's when you would get the  2 fibrils basically at an angle to the -- to the  3 fracture walls connecting on either side.  4 Q Okay. And you say that is the most  5 common means by which the asbestos occurs in  6 Vermont?  7 A (The witness nods.)  8 Q But not with respect to the J&amp;J mines.  9 MR. FROST: Objection to form.  10 THE WITNESS: I'm -- I don't know what  11 you mean by that. Sorry.  12 BY MR. BURNS:  13 Q Well, meaning because you haven't seen  14 any evidence of asbestos in the J&amp;J mines, what  15 you're describing there would not be true of those  16 mines?  17 A Yeah.  18 MR. FROST: Objection to form again.  19 BY MR. BURNS:  20 Q Given the geologic -- given the  21 geology -- the local geology of the J&amp;J mines,  22 would that process have been possible?  23 A I mean, again, we could devise a  24 hypothetical situation that might satisfy those  25 conditions, but I --</p>
<p style="text-align: right;">Page 195</p> <p>1 Q Well, I didn't really mean migration. I  2 mean the filling in of those -- those fractures  3 with the asbestiform materials.  4 A I mean, dominantly in Vermont where  5 asbestos is documented, it's says cross and slip  6 fibers.  7 Q And what do you mean by that?  8 A That basically as these fractures were  9 opening, they're apparently, you know, filled with  10 fluid at the same time that became saturated in  11 the chemical component, so the chrysotile chemical  12 formula basically, that those minerals or, you  13 know, fibrils nucleated on walls of -- of the  14 fractures, and depending on whether they opened  15 like that or like that (demonstrating), in this  16 case they appear to continue to grow as the  17 fracture continues to open. So it's -- the  18 nucleate on either side and -- or there are some  19 veins where things nucleate in the middle  20 initially, and then grow outward as well.  21 But in any case, the fibrils would be  22 growing as the fracture is opening. So cross  23 fibers would be perpendicular to the fracture  24 walls. Slip fibers would be one of those  25 fractures where there's, you know, some offset</p>	<p style="text-align: right;">Page 197</p> <p>1 Q I realize you haven't seen it, but  2 would -- would it be possible?  3 MR. FROST: Objection to form.  4 Inappropriate hypothetical.  5 THE WITNESS: Yeah, I'm sorry, I don't  6 know how to -- you know, lots of things are  7 possible, but many things don't happen. So I  8 can't -- I don't -- I can't comfortably answer  9 that without having all of the variables sort of  10 outlined for me and --  11 BY MR. BURNS:  12 Q Well, I certainly understand that, but  13 really I -- we're talking about a pretty small set  14 of variables, the ones you described as relatively  15 common in Vermont in terms of the formation of  16 asbestos materials.  17 And what I'm saying is, given the  18 regional geology that's present in the J&amp;J mines,  19 is it possible -- not probable, not, you know,  20 highly possible -- but is it possible that that  21 process of the creation of asbestos may -- may  22 have occurred in a similar fashion in those J&amp;J  23 mines?  24 MR. FROST: Same objection to form and  25 inappropriate hypothetical.</p>



<p style="text-align: right;">Page 198</p> <p>1 THE WITNESS: Yeah, like I said, we  2 could devise a -- a scheme presumably in which  3 that could occur, but it's -- while it might be  4 possible in some parallel universe, I -- I just --  5 it's not probable, and I just don't see any  6 evidence for it having occurred here.  7 BY MR. BURNS:  8 Q Well, what would constitute evidence for  9 you in that context?  10 MR. FROST: Objection to form.  11 THE WITNESS: Well, I would imagine that  12 in that belt of rocks, people would record  13 fractures filling with asbestos, more generally,  14 in the literature. Because, again, people have  15 been looking at these rocks for over a hundred  16 years. People are certainly interested and  17 concerned about asbestos.  18 So, had -- you know, it would be  19 documented in some of these, you know, Vermont  20 state reports, the USGS reports in the  21 peer-reviewed literature around the Chester dome,  22 and it's just -- it's not in anybody's data and  23 observations in the -- in the field.  24 BY MR. BURNS:  25 Q Well, what if it -- and this -- just</p>	<p style="text-align: right;">Page 200</p> <p>1 THE WITNESS: Yeah, and I did not find  2 any, because, again, the vast majority of what I  3 looked at was my own research.  4 MR. BURNS: Okay.  5 THE WITNESS: Can I take a quick break?  6 MR. BURNS: Oh, of course, sure.  7 THE WITNESS: I've been drinking a lot  8 of water and tea and --  9 MR. FROST: Yeah, I was going to say,  10 actually, I could use the restroom.  11 THE VIDEOGRAPHER: Going off the record  12 at 4:26.  13 (Recess.)  14 THE VIDEOGRAPHER: We're back on the  15 record at 4:57 p.m.  16 BY MR. BURNS:  17 Q Welcome back, Dr. Webb.  18 So, Dr. Webb, we were talking about when  19 last we left off, evidence -- evidence for  20 asbestos in talc in the J&amp;J mines in Vermont,  21 specifically.  22 MR. BURNS: Let's go ahead and mark  23 this, Amanda.  24 (Webb Exhibit No. 12 was marked  25 for identification.)</p>
<p style="text-align: right;">Page 199</p> <p>1 throwing this out there, what if -- what if it was  2 documented in a core log or observations by the  3 mining company at, say, the Argonaut mine, would  4 you consider that evidence?  5 MR. FROST: Objection.  6 BY MR. BURNS:  7 Q That would at least merit additional  8 testing?  9 MR. FROST: Objection to form.  10 THE WITNESS: Well, I mean, you know, if  11 you've got evidence where people have -- I mean,  12 where I can understand the methodology that was  13 used and see the data and observations -- I don't  14 want to take some random person who I don't know  15 their qualifications or what they're describing.  16 You know, so I'd be happy to -- if you've got  17 something you want me to look at that -- that  18 presents that, to consider it, sure.  19 BY MR. BURNS:  20 Q Okay. But you weren't presented any  21 such evidence when you were doing your report.  22 MR. FROST: Objection to form.  23 BY MR. BURNS:  24 Q Correct?  25 MR. FROST: Supposes there's evidence.</p>	<p style="text-align: right;">Page 201</p> <p>1 BY MR. BURNS:  2 Q All right. I'm going to hand you what  3 we've marked as Exhibit 12.  4 And just let me know when you are ready,  5 if you want to take a second to look it over.  6 A Okay. (Peruses document.)  7 Okay.  8 Q All right. Dr. Webb, have you seen  9 this -- well, let me start.  10 Exhibit No. 12 is a document bearing the  11 Bates labels IMERYYS 219720-722. It appears to be  12 dated March 25th, 1992. Title appears to be  13 "Cyprus Ore Reserves - Arsenic &amp; Tremolite."  14 Did I pronounce that -- or did I read  15 that correctly?  16 A "Cyprus Ore Reserves - Arsenic &amp;  17 Tremolite," yes.  18 Q Okay. Great.  19 Have you seen this document before?  20 A I have not.  21 Q Okay. This -- and have you had a chance  22 to read it?  23 A I did, yes.  24 Q Okay. And is it fair to say that this  25 document contains some discussion about the</p>

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1 presence of asbestos materials in talc deposits in  
 2 Vermont?  
 3 A It mentions fibrous amphiboles.  
 4 Q Including tremolite; is that right?  
 5 A Yes.  
 6 Q Okay. Is this the type of evidence that  
 7 would give you some concern if you had been  
 8 presented it when conducting your analysis?  
 9 A Not really, because fibrous is a -- a  
 10 general term for maybe an elongate or long aspect  
 11 ratio, but it's imprecise, and so it doesn't  
 12 necessarily indicate asbestos.  
 13 Q Fibrous tremolite?  
 14 A Yes.  
 15 Q It doesn't indicate asbestos to you?  
 16 A No.  
 17 Q Okay. Why is that?  
 18 A Again, because "fibrous" is used by  
 19 different people in different ways, and I've seen  
 20 many instances in the literature where it's used  
 21 for -- synonymously with like acicular. I mean,  
 22 I've used the terms "fibrous" in my work when I'm  
 23 talking about working with fault zones and -- and  
 24 quartz fibers, for example. But, again, it's  
 25 because they're crystals with long aspect ratios,

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1 THE WITNESS: Well, again, I mean, it's  
 2 the use of the -- fiber's an imprecise term. I  
 3 mean, obviously they don't want asbestos in -- in  
 4 their product, so -- but, again, I don't -- I  
 5 don't see anything here that -- that indicates  
 6 this term is -- is really -- equates to  
 7 asbestiform. So...  
 8 BY MR. BURNS:  
 9 Q Well, the next paragraph down says:  
 10 "Vermont talcs are derived from altered serpentine  
 11 - a natural host for asbestiform minerals. There  
 12 is certainly visible tremolite and actinolite in  
 13 specific zones of the Vermont deposits - fibrous  
 14 tremolite was identified by the writer in  
 15 exposures and cores at the East Argonaut and Black  
 16 Bear mines. Cyprus staff report past tremolite  
 17 from the Hammondsville and Clifton deposits."  
 18 Did I read that correctly?  
 19 A Sorry. Where was --  
 20 Q That's the fifth paragraph down, page 2.  
 21 A Yeah. So, I mean, you know, in general,  
 22 tremolite, I'm not concerned about that.  
 23 Tremolite means to me -- again, without -- unless  
 24 it's really described in detail, that's consistent  
 25 with the asbestiform habit, which again is a

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1 and it's -- it's not synonymous, not -- you can't  
 2 take this to -- to indicate asbestiform tremolite.  
 3 Q Have you -- what would you -- what else  
 4 would you need to take it to mean asbestiform  
 5 tremolite?  
 6 A Well, some detailed description about  
 7 the habit of the minerals that is consistent with  
 8 the definition of "asbestiform."  
 9 Q Well, so I'll direct you on page 2 to  
 10 the fourth paragraph down.  
 11 It says: "Cyprus claims that there are  
 12 no fibres in their cosmetic talc products, and  
 13 they work rigorously to ensure this. However, a  
 14 recent paper published by Rutgers University  
 15 worker, Alice Blount, suggests the presence of  
 16 fibre in several cosmetic talcs, some of which  
 17 might have been from Cyprus West Windsor material,  
 18 which is a source of great concern to Cyprus  
 19 management, and potentially to their principal  
 20 customer, Johnson & Johnson."  
 21 Why would Cyprus be concerned about  
 22 fibrous asbestiform materials, including  
 23 references to fibrous tremolite, if it were not  
 24 asbestos?  
 25 MR. FROST: Objection to form.

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1 primary growth habit.  
 2 You know, I'm not shocked that there's  
 3 tremolite here. I'm not shocked that there's  
 4 maybe acicular tremolite or, you know, tremolite  
 5 that someone might describe, depending on how they  
 6 used the term "fiber," as -- as fibrous. But I  
 7 can't -- I can't take anything in here and say,  
 8 This leads me to believe that there's actually  
 9 asbestos that's been identified.  
 10 Q Is asbestiform tremolite a regulated  
 11 form of asbestos?  
 12 A Asbestiform tremolite is a regulated  
 13 form, yes.  
 14 Q Are you able to discern from the  
 15 terminology used in this memo -- are you -- strike  
 16 that.  
 17 Are you able to exclude the possibility  
 18 that the tremolite referenced in this memo is  
 19 indeed asbestiform tremolite?  
 20 MR. FROST: Objection to form, calls for  
 21 speculation.  
 22 THE WITNESS: Well, again, I mean,  
 23 asbestos is so rare, and, again, takes these  
 24 special conditions that --  
 25 I'm sorry, I lost the -- the question.

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1 BY MR. BURNS:

2 Q No problem. I simply asked, can you  
3 exclude the possibility that this is asbestiform  
4 tremolite that's referenced in the memo?

5 A Based on everything I have learned and  
6 reviewed and understand, yeah, I -- I just  
7 can't -- I can't read this and say that this  
8 convinces me of anything. I'd, again, need to see  
9 field photographs of what this worker saw or  
10 photomicrographs, the -- again, a real distinct  
11 description that is consistent with the  
12 asbestiform habit. And fibers, fibrous, just --  
13 it could mean anything. It could mean a number of  
14 things.

15 Q So it's fair to say that reading this,  
16 you would need to see more?

17 A Yes.

18 Q Okay. Now, there's a reference in the  
19 sixth paragraph down. It says: "Tremolite in  
20 these deposits is encountered in the contact zones  
21 between the talc and the surrounding schist; in  
22 'grey talcs' in the vicinity of the contacts; and  
23 associated with the chlorite/amphibole waste zones  
24 within the talc ores that are locally termed  
25 'cinders.'"

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1 Do you see that?

2 A Yes.

3 Q Are you familiar with the term  
4 "cinders"?

5 A I've heard it. I mean, it's not a term  
6 that I throw around, but...

7 Q What is your understanding of what it  
8 describes in -- in layman's terms?

9 A Like I said, I've heard it, but it's not  
10 something I use, and so it's not something I feel  
11 prepared to define for you.

12 Q Have you ever investigated cinders in  
13 your -- in your work?

14 A No.

15 Q When -- were you to investigate --  
16 strike that.

17 Were you to examine a sample of  
18 tremolite to determine whether it was asbestiform,  
19 what would you do?

20 MR. FROST: Objection to form. Outside  
21 of the scope of her expertise.

22 THE WITNESS: Well, I mean, I think it  
23 would start with the recognition of -- of fibrils,  
24 bundles of fibrils, and, I mean, you could  
25 recognize that in an outcrop if -- if you saw

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1 that. If you've seen, I mean, asbestos in a hand  
2 sample, which hopefully you've never held in your  
3 hands, I know, but we've got drawers in the rock  
4 collection at UVM -- I mean, asbestos is pretty  
5 apparent when you see it in -- in person at the  
6 macroscopic scale.

7 BY MR. BURNS:

8 Q Okay.

9 A Yeah.

10 Q And in the microscopic scale, what are  
11 you looking for? Is there a certain aspect ratio  
12 of the fibers that you're trying to determine?

13 MR. FROST: Same objection. Beyond the  
14 scope of her report and her expertise.

15 THE WITNESS: Yeah, I mean, there's no  
16 one specific aspect ratio. Again, you would -- if  
17 it were -- if it were broken down and you were  
18 looking at a loose pile of this -- well, again, in  
19 bulk, I think it would be clear because you would  
20 have long fibrils and bundles, and there would  
21 probably be some that might be curved and they  
22 might be quite long.

23 In -- under the microscope, I mean, you  
24 would be looking for the same thing, long -- long  
25 aspect ratios, but, again, nothing specific

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1 because it might vary in -- in the population  
2 you're looking at.

3 BY MR. BURNS:

4 Q Would a 5-to-1 ratio suffice?

5 MR. FROST: Same objection.

6 THE WITNESS: No.

7 BY MR. BURNS:

8 Q No?

9 A (Witness shakes head.)

10 Q Are you aware that that's the ratio  
11 specified by the National Institute of  
12 Occupational Safety and Health?

13 MR. FROST: Objection to form.  
14 Misstates document.

15 THE WITNESS: I -- I know that there are  
16 5-to-1 and 3-to-1, depending on the -- my -- the  
17 source of the -- the counting criteria, that there  
18 are small-aspect-ratio cutoffs for like that.  
19 But, again, you know, that's in cases -- those  
20 ratios were developed for cases when there's  
21 abatement of known asbestos at hand.

22 So, you know, I would say that I  
23 regularly run into minerals that would meet that  
24 criteria, 3-to-1 or 5-to-1, and they're -- you  
25 know, they can be quite -- well, not that large,

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1 but, you know -- so, again, scale matters as well.  
2 But, yeah, I don't think that's a -- an  
3 accurate cutoff or criterion for -- for issues  
4 outside of abatement.  
5 MR. BURNS: Let's mark this one, Amanda.  
6 BY MR. BURNS:  
7 Q We'll mark this as Exhibit No. 13,  
8 Dr. Webb.  
9 (Webb Exhibit No. 13 was marked  
10 for identification.)  
11 THE WITNESS: (Peruses document.)  
12 Okay.  
13 BY MR. BURNS:  
14 Q All right, Dr. Webb. Exhibit 13 is a  
15 document with Bates label IMERYS 28 -- 238270  
16 through 238277, and it's titled "Interoffice  
17 Correspondence," "Subject: Hamm Mine Core  
18 Drilling."  
19 The second paragraph, Dr. Webb, contains  
20 the following sentence: "Fibrous amphiboles  
21 (actinolite) were observed only within chloritized  
22 mafic dikes, extending, in places, a couple of  
23 inches into the contacting talc ore."  
24 Did I read that correctly?  
25 A Yes.

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1 Q Is this the type of statement that would  
2 cause you to want to seek more information?  
3 A Not necessarily, because, again, fibrous  
4 amphiboles, in general, 99 percent of the time  
5 will not necessarily refer to asbestiform  
6 actinolite, and -- I mean, I've seen images where,  
7 yeah, most of these amphiboles in the region have  
8 these long aspect ratios, but, again, they do not  
9 meet the criterion of -- of the asbestiform habit.  
10 Q And what criterion are you speaking of  
11 in that context?  
12 A Again, well, primary growth habit of  
13 fibrils in -- generally in bundles that have long  
14 aspect ratios but high flexibility, relatively  
15 defect-free surfaces which impact or -- are part  
16 of what leads to their chemical resistance.  
17 So, again, without photomicrographs or  
18 photos that really give the details of what is  
19 meant by fibrous, there's no way to extrapolate  
20 from this the presence of asbestos.  
21 Q But given the potential risk and the --  
22 and the fact that you can't exclude the  
23 possibility of asbestos, wouldn't you want to seek  
24 additional information?  
25 MR. FROST: Objection to form.

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1 THE WITNESS: No, because, I mean, up  
2 and down Vermont, near talc, away from talc,  
3 people describe a lot of fibrous amphiboles, and,  
4 you know, virtually in all cases they refer to --  
5 this term is used for an acicular habit that is  
6 distinctly different from asbestiform.  
7 So, I mean, nothing I read here is  
8 surprising to me. It -- it doesn't raise the  
9 questions that, you know -- again, in the absence  
10 of detailed descriptions, there's --  
11 BY MR. BURNS:  
12 Q And that's even though up and down  
13 Vermont, the presence of confirmed asbestos has  
14 occurred?  
15 MR. FROST: Objection to form.  
16 THE WITNESS: Virtually all of that is  
17 chrysotile, and not amphiboles, and, yeah, there's  
18 a lot of amphibole in -- in the Green Mountains,  
19 and so -- I mean, long aspect ratio amphiboles  
20 are -- are garden variety amphiboles in our state.  
21 MR. BURNS: Let's mark this one -- 14?  
22 (Webb Exhibit No. 14 was marked  
23 for identification.)  
24 THE WITNESS: Does anybody have a  
25 magnifying glass handy? Shall I do --

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1 BY MR. BURNS:  
2 Q And just to help you out, I'm going to  
3 point you to -- you're welcome to look at the  
4 whole thing -- I'm going to focus on the back side  
5 of page 2.  
6 A So, yeah, the page where I asked for --  
7 Q The page where you needed a magnifying  
8 glass.  
9 A I do have reading glasses in my --  
10 Q Well, let's see, do we have a clean copy  
11 here? I can probably blow it up a little bit  
12 here.  
13 MR. FROST: You can take this one. It's  
14 clean.  
15 MR. BURNS: All right.  
16 MR. FROST: Is that -- can you see that  
17 better, Laura?  
18 MR. BURNS: Not yet.  
19 MR. FROST: He's going to try to zoom in  
20 on it.  
21 THE WITNESS: I mean, actually, can I  
22 get my glasses, and --  
23 MR. BURNS: Sure, absolutely.  
24 THE VIDEOGRAPHER: Going off the record  
25 at 5:22 p.m.

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1 (Pause.)  
 2 THE VIDEOGRAPHER: We're back on the  
 3 record at 5:24 p.m.  
 4 BY MR. BURNS:  
 5 Q Okay, Dr. Webb, you have Exhibit 14 in  
 6 your hand, which bears Bates label IMERYYS 436951  
 7 through IMERYYS 436971.  
 8 Just one question about Exhibit 13, the  
 9 preceding exhibit, just a quick question. Had you  
 10 seen that exhibit before?  
 11 A No.  
 12 Q Okay. So same question with respect to  
 13 Exhibit 14 to start, is this a document you've  
 14 seen before?  
 15 A No.  
 16 Q Okay. Let's focus on the fourth page in  
 17 the documents, IMERYYS 436954.  
 18 A Sorry, is the first -- is this page 1?  
 19 Q Yes.  
 20 A Oh, okay. So it's the back of the  
 21 second sheet. Yeah, okay.  
 22 Q That's right.  
 23 A I'm making sure it's what I actually  
 24 looked at.  
 25 Q No problem. And I've put it up on the

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1 A Yes.  
 2 Q Would these notations cause you to want  
 3 to inquire more as to the nature of these test  
 4 findings or core samples and the constituency of  
 5 the minerals?  
 6 MR. FROST: Objection to form.  
 7 THE WITNESS: Yeah, I mean, again, the  
 8 presence of actinolite around the ore bodies is,  
 9 you know, not a shocker whatsoever. I mean, so it  
 10 doesn't surprise me.  
 11 You know, in terms of "detrimental  
 12 minerals," I don't know what they mean. Obviously  
 13 these are things that they don't necessarily  
 14 want in the -- I mean, I don't want to rub  
 15 actinolite on my face, asbestiform or  
 16 non-asbestiform, but --  
 17 BY MR. BURNS:  
 18 Q Are those questions you would want to  
 19 ask the author?  
 20 MR. FROST: Objection to form.  
 21 THE WITNESS: No, again, because I  
 22 wouldn't be surprised about the -- the presence of  
 23 actinolite generally that -- you know, I'd see  
 24 this and move on, and again try and find -- well,  
 25 like in the materials that I looked at, some --

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1 ELMO, just so we can have a little bit better view  
 2 of it. I don't know if that's better for you  
 3 or --  
 4 A I'll look at where you're pointing at,  
 5 and then I'll confer with this too.  
 6 Q Okay. These appear to be and are titled  
 7 "Ore Characterization Summary Sheets." Do you  
 8 agree with that?  
 9 A What was the first word you said,  
 10 "before"?  
 11 Q "Ore Characterization Summary Sheets."  
 12 A Yes, this says "Ore Characterization  
 13 Summary Sheets," yes.  
 14 Q Okay. And there appear to be two of  
 15 these summary sheets side by side dated September  
 16 '92, specifying ore types and associated  
 17 materials.  
 18 A Yes.  
 19 Q And you see in both the presence of  
 20 actinolite and serpentine is indicated.  
 21 A Yeah.  
 22 Q Okay. And they are also -- the  
 23 actinolite and -- the actinolite is noted as a  
 24 detrimental mineral below each notation; is that  
 25 right?

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1 some indication, some description that would  
 2 equate this actinolite to asbestiform actinolite.  
 3 BY MR. BURNS:  
 4 Q Well, if you were blindfolded and the  
 5 person who obtained and tested the sample told you  
 6 that it contained actinolite, would you want to  
 7 rub that on your face?  
 8 MR. FROST: Objection to form.  
 9 THE WITNESS: It would hurt. I mean, it  
 10 would be gritty.  
 11 BY MR. BURNS:  
 12 Q If it was asbestiform, it may be even  
 13 worse.  
 14 MR. FROST: Objection to form.  
 15 THE WITNESS: Well, yeah -- but, yeah, I  
 16 mean, again, you know, actinolite is no surprise.  
 17 I talk about actinolite in my -- in my report. In  
 18 the absence of clearcut asbestiform habit --  
 19 BY MR. BURNS:  
 20 Q You're just not interested in knowing  
 21 more?  
 22 MR. FROST: Objection to form.  
 23 THE WITNESS: I mean, well -- yeah, I  
 24 mean, I -- I feel like I'm not surprised to see  
 25 actinolite show up occasionally in the tests, and

55 (Pages 214 to 217)



<p style="text-align: right;">Page 218</p> <p>1 that is not a surprise. It's known. I don't know  2 what else to say. It's --  3 BY MR. BURNS:  4 Q Have you drawn any -- are you prepared  5 to offer any opinions with respect to the presence  6 or absence of arsenic in the talc in the J&amp;J  7 mines?  8 A I mean, I -- I'm familiar with some of  9 the -- the literature. It wasn't something that I  10 focused on, you know --  11 Q Or you were asked to do.  12 A -- or opined about in my report. So, I  13 know some things, but I didn't prepare in depth on  14 that topic for this deposition.  15 Q Nor have you offered an opinion on it?  16 A No.  17 Q Do you plan to offer an opinion on it?  18 MR. FROST: Objection to form.  19 THE WITNESS: Not really, but I guess it  20 depends on what you ask me, the nature of the  21 questions, if there are further questions on that.  22 BY MR. BURNS:  23 Q What about any other heavy metals in the  24 J&amp;J talc --  25 MR. FROST: Objection.</p>	<p style="text-align: right;">Page 220</p> <p>1 opinion as to the presence or absence of any of  2 those minerals?  3 A Well, again, they're -- they're trace  4 elements that I know have been documented, but,  5 you know, again, I don't have it in my head  6 what -- what those concentrations are or the  7 details of the distribution. So I'm not -- I'm  8 not ready today to -- to comment on that for you.  9 Q And you haven't been asked to.  10 A No, I have not been asked to, no.  11 Q Okay. If you'd go back to Exhibit 1,  12 your report, Dr. Webb.  13 And I realize the level of detail on  14 page 17 in -- in Figure 9 makes this difficult.  15 First of all, did the mineral codes or  16 rock codes vary across maps, or can they vary?  17 MR. FROST: Objection to form.  18 THE WITNESS: Each of the different  19 colored or patterned units here is a different --  20 is a different rock unit. So, yes, there's a  21 distribution of different rock types here in  22 this --  23 BY MR. BURNS:  24 Q Well, by that I mean -- let's see, this  25 map was taken from --</p>
<p style="text-align: right;">Page 219</p> <p>1 BY MR. BURNS:  2 Q -- are you going to offer any opinion on  3 those?  4 MR. FROST: Objection to form. Assumes  5 there's any metals in the J&amp;J talc.  6 THE WITNESS: Again, I -- I have some  7 general knowledge, but it's not literature that I  8 reviewed or summarized for here. So I don't feel  9 prepared to -- as we sit here today, to opine on  10 that.  11 BY MR. BURNS:  12 Q And just so I can close that loop, any  13 opinion as to the presence or absence of nickel?  14 MR. FROST: Same objections.  15 THE WITNESS: I mean, I would say  16 presence, yes. At what levels is where the devil  17 in the details is, so -- and I can't quote you  18 parts per million or parts per billion here,  19 but --  20 BY MR. BURNS:  21 Q Same question with respect to cobalt?  22 A Same answer.  23 Q Chromium?  24 A Similar answer, yeah, and, again, I'm --  25 Q But you're not prepared to offer an</p>	<p style="text-align: right;">Page 221</p> <p>1 A It's Ratcliffe, et al., 2011.  2 Q 2011. Okay. Which was a GS -- USGS  3 map, right?  4 A (The witness nods.)  5 Q And have you cited or described any  6 non-USGS maps in your report?  7 A Well, I mean -- well, Karabinos -- not a  8 specific map -- well, actually, there are -- in  9 Karabinos, et al., 2010, I talk about the  10 isograds. Again, the -- the lines that you would  11 draw on the map that delineate boundaries between  12 rocks that have experienced the same pressure  13 temperature conditions during a metamorphic event.  14 Q Okay. And what I'm really getting at  15 are -- is not necessarily the separation into  16 different codes, but the codes themselves that are  17 used for rocks that are relevant to your analysis.  18 Can those vary across maps, meaning between the  19 USGS maps and the other map you just described?  20 A Oh, they might.  21 MR. FROST: Objection to form.  22 BY MR. BURNS:  23 Q Do you recall offhand the specific rock  24 codes that you viewed as relevant to your analysis  25 in this particular case?</p>

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<p>1 A I believe the -- I'd have to look at</p> <p>2 the -- the map -- the map index to really confirm,</p> <p>3 but I believe that the ultramafics here are the</p> <p>4 CZU, and that, in general -- I mean, the -- the</p> <p>5 country rocks that host those bodies are -- that's</p> <p>6 the Mooretown information, but the -- O something.</p> <p>7 I -- yeah, sorry, I don't have the code memorized.</p> <p>8 Q Okay. Are you familiar with any reports</p> <p>9 of mass fibers, mass asbestos fibers in Vermont</p> <p>10 talc deposits?</p> <p>11 A No.</p> <p>12 Q Are mass fibers relatively rare?</p> <p>13 A Yes.</p> <p>14 Q Where do they typically occur?</p> <p>15 A Well, I know they've been documented at</p> <p>16 Belvidere Mountain. And also out in California</p> <p>17 in -- I'm not going to be able to remember the</p> <p>18 name of the -- of the body. But it's, yeah, in</p> <p>19 limited instances and much rarer occurrences than</p> <p>20 the cross and slip fiber occurrences.</p> <p>21 Q Okay.</p> <p>22 MR. BURNS: We have a couple of</p> <p>23 documents that we had pulled out that we need to</p> <p>24 figure out what to do with. You want to mark</p> <p>25 these individually or wait till we mark the --</p>	<p>1 and not by Dr. Webb, although they hopefully</p> <p>2 approximate her reliance materials.</p> <p>3 MR. FROST: Yep, that's fair, and</p> <p>4 that -- that's a fair statement of the agreement</p> <p>5 we reached.</p> <p>6 MR. BURNS: All right. Great. Thanks,</p> <p>7 Mr. Frost.</p> <p>8 BY MR. BURNS:</p> <p>9 Q So we will mark that box Exhibit 15.</p> <p>10 There are a couple of documents, Dr. Webb, that</p> <p>11 we're just trying to figure out what they are,</p> <p>12 frankly, and we'll mark those as 15A and 15B.</p> <p>13 (Webb Exhibit Nos. 15, 15A and 15B</p> <p>14 were marked for identification.)</p> <p>15 BY MR. BURNS:</p> <p>16 Q And I'll hand you 15A first.</p> <p>17 There's 15B. B as in boy.</p> <p>18 A I would want to confirm this, but my</p> <p>19 first impression is, is that this is from the</p> <p>20 spreadsheet that is part of Van Gosen 2006.</p> <p>21 Q And that's referring to Exhibit 15A, is</p> <p>22 it not?</p> <p>23 A Yes. 15A, yes.</p> <p>24 So I believe, you know, if you go to the</p> <p>25 site, the USGS site from which you can download</p>
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<p>1 MS. O'DELL: Let's mark them</p> <p>2 individually.</p> <p>3 MR. BURNS: Okay. That may make --</p> <p>4 let's go off the record for a second.</p> <p>5 THE VIDEOGRAPHER: Going off the record</p> <p>6 at 5:35 p.m.</p> <p>7 (Recess.)</p> <p>8 THE VIDEOGRAPHER: We're back on the</p> <p>9 record at 5:43 p.m.</p> <p>10 BY MR. BURNS:</p> <p>11 Q Hello again, Dr. Webb.</p> <p>12 MR. BURNS: So, first of all, a bit of</p> <p>13 colloquy between counsel here. Defense counsel</p> <p>14 was kind enough this morning to bring in two</p> <p>15 boxes, which I believe were identical, of</p> <p>16 documents that defense counsel had put together</p> <p>17 that constitute what they believe to be, I think,</p> <p>18 the vast majority of your reliance materials with</p> <p>19 maybe the exception of Winter.</p> <p>20 MR. FROST: I think that's the only one</p> <p>21 we found was missing thus far.</p> <p>22 MR. BURNS: Thus far. So we have agreed</p> <p>23 to simply mark one of the boxes as Exhibit 15,</p> <p>24 with the stipulation that the box and its</p> <p>25 materials were gathered and prepared by counsel</p>	<p>1 the map that I talked about that plots presumable</p> <p>2 asbestos localities in Vermont, there are some</p> <p>3 supporting documents, and in those, yeah, was this</p> <p>4 list -- I mean, it was for all of New England, but</p> <p>5 this is the sheet that's specific to Vermont, and</p> <p>6 it gives the latitude, longitude. And then this</p> <p>7 is the list of references that I said that I tried</p> <p>8 to dig into on my own to confirm those</p> <p>9 occurrences.</p> <p>10 Q Okay. So just to be clear, 15A is not a</p> <p>11 document that you believe you prepared; is that</p> <p>12 right?</p> <p>13 A Oh, yeah. No, I didn't prepare this. I</p> <p>14 think we could go and download the Excel file off</p> <p>15 the USGS website, and this is what would be in</p> <p>16 that.</p> <p>17 Q I see.</p> <p>18 MR. BURNS: And you can let us know with</p> <p>19 an errata, I would assume, if that's not -- not</p> <p>20 the case.</p> <p>21 MR. FROST: Yeah, we'll confirm that.</p> <p>22 MR. BURNS: Okay.</p> <p>23 THE WITNESS: And I'm not sure, because</p> <p>24 when I went into the references, I went into the</p> <p>25 list that was specific to Vermont that's shown</p>

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<p>1 here in 15A.</p> <p>2 My guess is that this is the -- the list</p> <p>3 of references that accompanied the -- the map more</p> <p>4 directly. So this would include -- again, this</p> <p>5 particular report was asbestos in New England or</p> <p>6 the northeastern United States, so he had these</p> <p>7 spreadsheets specific to each state. And then I</p> <p>8 think this is the -- a compilation of all these</p> <p>9 for -- for all of the sites that -- but, again,</p> <p>10 I -- we'd have to -- we should be able to download</p> <p>11 this from that same website, the USGS site.</p> <p>12 BY MR. BURNS:</p> <p>13 Q Thank you, Dr. Webb.</p> <p>14 MR. BURNS: And I guess we'll just</p> <p>15 confirm that.</p> <p>16 MR. FROST: Yes. Same thing, if we</p> <p>17 confirm something different, we'll mark it in the</p> <p>18 errata sheet.</p> <p>19 MR. BURNS: Okay. Thank you.</p> <p>20 So do we have a standalone one like</p> <p>21 this?</p> <p>22 MS. O'DELL: No, that's all we have.</p> <p>23 MR. BURNS: Okay. Let's make sure we've</p> <p>24 got -- this one is marked, so we probably want to</p> <p>25 make sure that there's a clean version in the</p>	<p>1 (Webb Exhibit No. 15C was marked</p> <p>2 for identification.)</p> <p>3 BY MR. BURNS:</p> <p>4 Q Okay. Dr. Webb, we have handed you</p> <p>5 Exhibit 15C, C as in Charlie.</p> <p>6 Is this the English translation of the</p> <p>7 Chinese article that we were looking at earlier?</p> <p>8 A I believe so, yes.</p> <p>9 Q Okay. Now, in looking through this --</p> <p>10 and this was an article on which you relied in</p> <p>11 rendering your opinions with respect to the</p> <p>12 Chinese mines; is that right?</p> <p>13 A I did, yes.</p> <p>14 Q Okay. Now, in terms of the orogen of</p> <p>15 the talc in those mines, is it fair to say that</p> <p>16 the -- that the orogen of the talc was in part</p> <p>17 tremolite existing in the region?</p> <p>18 A I'm sorry, I don't -- I don't understand</p> <p>19 the question.</p> <p>20 Q Sure.</p> <p>21 Let me just turn you to page -- well,</p> <p>22 there's a page -- let's see.</p> <p>23 A I'll work with you.</p> <p>24 Q Four pages before the end.</p> <p>25 A Okay. So this one with the --</p>
Page 227	Page 229
<p>1 actual Exhibit 15 box.</p> <p>2 MR. FROST: What document is this,</p> <p>3 Leigh?</p> <p>4 MR. BURNS: This is the English</p> <p>5 translation.</p> <p>6 MR. FROST: Yes, that's definitely not</p> <p>7 in the box.</p> <p>8 MR. BURNS: Oh, it's not?</p> <p>9 MS. O'DELL: I found it in the box.</p> <p>10 MR. FROST: Oh, you did find it in the</p> <p>11 box? Oh, okay.</p> <p>12 MS. O'DELL: It was a few tabs after --</p> <p>13 MR. FROST: I see. You had -- yeah, I</p> <p>14 did it too, Laura. Let's see if we can find a</p> <p>15 clean copy.</p> <p>16 MR. BURNS: Thank you.</p> <p>17 MR. FROST: You don't happen to know the</p> <p>18 number, do you?</p> <p>19 MR. BURNS: Leigh.</p> <p>20 (A discussion was held off the record.)</p> <p>21 THE VIDEOGRAPHER: Going off the record</p> <p>22 at 5:48 p.m.</p> <p>23 (A discussion was held off the record.)</p> <p>24 THE VIDEOGRAPHER: Back on the record at</p> <p>25 5:50 p.m.</p>	<p>1 Q That's it, I think.</p> <p>2 And perhaps I wasn't precise enough or</p> <p>3 didn't use the right terminology, but if we walk</p> <p>4 through this page, I think you'll see where I'm</p> <p>5 going.</p> <p>6 So the article refers to the mother rock</p> <p>7 that is directly related to mineralization is</p> <p>8 dolomite marble. Do you see that?</p> <p>9 A Yes.</p> <p>10 Q And by "mother rock," that would be the</p> <p>11 rock that was changed ultimately to talc?</p> <p>12 A Yeah, so in my report that's the</p> <p>13 protolith.</p> <p>14 Q Okay. The protolith.</p> <p>15 Now, it goes on to say: "This formation</p> <p>16 contains 19 percent magnesium oxide in this zone,</p> <p>17 so the requirement for generating the talc ore</p> <p>18 deposit cannot be completely satisfied, and</p> <p>19 magnesium oxide must be absorbed from the external</p> <p>20 surrounding rock to supplement, and the</p> <p>21 surrounding rock that satisfies this formation</p> <p>22 condition is spilite." Is that right?</p> <p>23 A Yes.</p> <p>24 Q It goes on to say: "In this zone, the</p> <p>25 content of MGO in spilite is 8.14 percent on</p>

<p style="text-align: right;">Page 230</p> <p>1 average. Through rock-mineral determination and</p> <p>2 analysis, magnesium oxide is mainly concentrated</p> <p>3 in the tremolite, the content" -- parentheses,</p> <p>4 "the content of tremolite in spilite is 30 to</p> <p>5 35 percent."</p> <p>6 Is that correct?</p> <p>7 A Yes.</p> <p>8 Q Okay. So in this case, would the</p> <p>9 tremolite existing in the spilite also be</p> <p>10 considered a protolith to the talc?</p> <p>11 A Well, it's part of the metasomatic</p> <p>12 process. So what he describes here is, again,</p> <p>13 that there is diffusion of chemicals, of elements</p> <p>14 across the rock boundaries. And what he said is</p> <p>15 that basically if you look at the mass balance,</p> <p>16 you can't just form the talc that's present solely</p> <p>17 by the chemistry of the -- the dolomite alone. So</p> <p>18 that there was diffusion of magnesium across the</p> <p>19 rock boundary from the -- the spilite into the</p> <p>20 dolomite.</p> <p>21 So, no, I mean, the protolith is still</p> <p>22 the -- the carbonate rock, but the magnesium</p> <p>23 that's ultimately in the talc, some percentage of</p> <p>24 that diffused from the -- the spilite.</p> <p>25 Q Which the source of that magnesium was</p>	<p style="text-align: right;">Page 232</p> <p>1 A Yes.</p> <p>2 Q And that magnesium -- would that</p> <p>3 magnesium oxide have been contributed from the</p> <p>4 tremolite to form the -- to form the talc by --</p> <p>5 actually, strike that.</p> <p>6 Why don't I just ask you this question:</p> <p>7 How would the tremolite contribute that magnesium</p> <p>8 oxide to the formation of the talc ore?</p> <p>9 A There would be, I mean, a metamorphic</p> <p>10 reaction. So -- and, actually, I think he</p> <p>11 describes this in here. I'd have to again kind of</p> <p>12 look at this in -- in more detail, but -- but</p> <p>13 basically the tremolite is -- is reacting -- well,</p> <p>14 undergoing a chemical reaction where the magnesium</p> <p>15 is liberated, and so then you're going to have</p> <p>16 residual silicon dioxide and also calcium, and</p> <p>17 some of that calcium I believe is contributing to</p> <p>18 the formation of -- of carbonate, of calcite in</p> <p>19 this case.</p> <p>20 So the tremolite that does break down is</p> <p>21 no longer there. The magnesium went into the</p> <p>22 talc, in the talc ore, and the residual calcium</p> <p>23 and silica probably formed quartz and calcite.</p> <p>24 Q Okay. Is it possible that the remaining</p> <p>25 tremolite could have been interspersed with the</p>
<p style="text-align: right;">Page 231</p> <p>1 the tremolite in the spilite, correct?</p> <p>2 A Yeah, that was the -- the</p> <p>3 magnesium-bearing mineral in the spilite, yes.</p> <p>4 Q Okay. And the tremolite -- content of</p> <p>5 the tremolite and spilite was 30 to 35 percent,</p> <p>6 correct?</p> <p>7 A Yes, that's what it says.</p> <p>8 Q Is it possible that -- excuse me -- is</p> <p>9 it possible that tremolite was not fully</p> <p>10 assimilated into the resulting talc such that</p> <p>11 tremolite remains in the talc ore?</p> <p>12 MR. FROST: Objection to form, misstates</p> <p>13 document.</p> <p>14 THE WITNESS: Such that tremolite --</p> <p>15 what was the last part?</p> <p>16 BY MR. BURNS:</p> <p>17 Q Remains in the talc ore.</p> <p>18 A I think you mean remains in the spilite?</p> <p>19 Q Well, what I'm getting at is some</p> <p>20 percentage of the magnesium would have come from</p> <p>21 the -- from the talc or from the tremolite -- let</p> <p>22 me strike that.</p> <p>23 Some percentage of the magnesium oxide</p> <p>24 would have come from the tremolite in the spilite,</p> <p>25 correct?</p>	<p style="text-align: right;">Page 233</p> <p>1 talc ore?</p> <p>2 A Yeah, I don't -- I don't think so. It</p> <p>3 seems that they describe -- the boundaries are</p> <p>4 still pretty -- pretty clear. So -- but again,</p> <p>5 you know, I wouldn't be surprised if there was a</p> <p>6 little bit of tremolite maybe in with the -- the</p> <p>7 talc, but that doesn't mean anything in -- you</p> <p>8 know.</p> <p>9 Q Without further question.</p> <p>10 A Yeah, I mean, you know, my -- the</p> <p>11 default would always be that it's prismatic</p> <p>12 tremolite or, again, maybe acicular tremolite or</p> <p>13 ablated tremolite, but this is not a recipe for</p> <p>14 making tremolite asbestos.</p> <p>15 Q Why would that always be the default?</p> <p>16 A Because asbestos is so rare. I mean,</p> <p>17 I've seen tremolite in a lot of rocks, but I've</p> <p>18 never seen tremolite asbestos in -- again, in my</p> <p>19 own studies, and that -- you know, and most people</p> <p>20 haven't. You know, there's basically -- what are</p> <p>21 the statistics I quoted in my report? That of the</p> <p>22 amphiboles present in rocks in the continental</p> <p>23 crust, less than 1 percent by volume, I think, are</p> <p>24 asbestiform.</p> <p>25 And so, you know, it really takes</p>

<p style="text-align: right;">Page 234</p> <p>1 special conditions, a special situation to create</p> <p>2 that, and what is described here is not --</p> <p>3 Q What percent --</p> <p>4 A -- anything that leads me to believe</p> <p>5 that this resulted in tremolite asbestos.</p> <p>6 Q What percentage of the crust do</p> <p>7 amphiboles make up?</p> <p>8 A They're the fifth most common mineral</p> <p>9 generally in the continental crust, and, I mean,</p> <p>10 it depends on where you are. I think, you know,</p> <p>11 it's maybe -- let me check because I wrote</p> <p>12 something about this. I don't want to misspeak.</p> <p>13 So in the coterminous United States by</p> <p>14 area, 6 to -- 6 to 10 percent of the rock types</p> <p>15 exposed at the surface are amphibole bearing.</p> <p>16 Q And so 1 percent of that 6 to 10 percent</p> <p>17 would be asbestiform?</p> <p>18 A Or less than 1 percent by volume of --</p> <p>19 of all amphiboles, yes.</p> <p>20 Q That would still be a pretty significant</p> <p>21 volume of rock, though, would it not?</p> <p>22 MR. FROST: Objection to form.</p> <p>23 THE WITNESS: Yeah, but it -- again, it</p> <p>24 takes special conditions. So where asbestos is</p> <p>25 formed, it's well documented by multiple</p>	<p style="text-align: right;">Page 236</p> <p>1 or I was familiar with many, but --</p> <p>2 Q Did you look up Robert Virta, 1985,</p> <p>3 Bureau of Mines?</p> <p>4 A I have seen that.</p> <p>5 Q Okay. Do you recall reading it?</p> <p>6 A Yeah. Can -- actually, can we see the</p> <p>7 exact citation, because I just want to --</p> <p>8 Q I think we could mark it. Right?</p> <p>9 (Webb Exhibit No. 16 was marked</p> <p>10 for identification.)</p> <p>11 MR. FROST: Are we on 17?</p> <p>12 MS. KLEVORN: 16.</p> <p>13 MR. BURNS: 16, yep.</p> <p>14 MR. FROST: That's right, because you</p> <p>15 marked everything as A, B or C, right?</p> <p>16 Thank you.</p> <p>17 THE WITNESS: Uh, I -- I believe I have</p> <p>18 seen this, but, again, it really wasn't of -- of</p> <p>19 interest because it's from New York. So it didn't</p> <p>20 pertain directly to the petrology of -- of the</p> <p>21 mines of interest.</p> <p>22 BY MR. BURNS:</p> <p>23 Q Do you recall there being references to</p> <p>24 talc mines within this document?</p> <p>25 A I really have to read it again, because,</p>
<p style="text-align: right;">Page 235</p> <p>1 instances, and it -- you know, it's rare. I --</p> <p>2 just, you know, I wouldn't -- I would never expect</p> <p>3 if someone says tremolite or actinolite that they</p> <p>4 mean actinolite or tremolite asbestos unless</p> <p>5 it's -- that is specified in -- in those words,</p> <p>6 asbestiform.</p> <p>7 MR. BURNS: Can we just go off the</p> <p>8 record for a minute?</p> <p>9 THE VIDEOGRAPHER: Going off the record</p> <p>10 at 6:00 p.m.</p> <p>11 (Recess.)</p> <p>12 THE VIDEOGRAPHER: We're back on the</p> <p>13 record at 6:07 p.m.</p> <p>14 BY MR. BURNS:</p> <p>15 Q Dr. Webb, I believe you testified that</p> <p>16 you had reviewed Drs. Cook and Krekeler's reports;</p> <p>17 is that correct?</p> <p>18 A Yes.</p> <p>19 Q Okay. Now, did you review all of the</p> <p>20 reliance materials that were listed in those</p> <p>21 reports?</p> <p>22 A Well, for -- particularly for the</p> <p>23 petrology related piece that I was specifically</p> <p>24 interested in, I did look up some of their</p> <p>25 citations. I wouldn't say all of them necessarily</p>	<p style="text-align: right;">Page 237</p> <p>1 again, I didn't -- I didn't review it in</p> <p>2 preparation for today. I -- I don't believe it</p> <p>3 was on my reliance either.</p> <p>4 Q Okay. So this had -- you don't recall</p> <p>5 this report having any impact on your opinions.</p> <p>6 Is that correct?</p> <p>7 A Yeah, I mean -- again, I mean, the</p> <p>8 samples are specific to the Gouveneur mine in New</p> <p>9 York state. So -- no, it didn't -- it didn't feed</p> <p>10 into my -- the opinions I presented in my report.</p> <p>11 Q Okay. What about Charles Ratte, 1982?</p> <p>12 A Yes, I've seen that. The state</p> <p>13 geologist report?</p> <p>14 Q Right, the state geologist of Vermont,</p> <p>15 correct?</p> <p>16 A Yes.</p> <p>17 Q Did you review that report before --</p> <p>18 A I --</p> <p>19 Q I'm sorry, go ahead.</p> <p>20 A No.</p> <p>21 Q Did you review that report prior to</p> <p>22 rendering your opinions?</p> <p>23 A Yes.</p> <p>24 Q And did it impact your opinions at all?</p> <p>25 MR. BURNS: Let's go ahead and mark it.</p>



<p style="text-align: right;">Page 238</p> <p>1 THE WITNESS: I don't think it was a --</p> <p>2 a key player. I think I saw some things in there</p> <p>3 that seemed inconsistent with other data, and --</p> <p>4 but, again, the details I don't have in my head.</p> <p>5 (Webb Exhibit No. 17 was marked</p> <p>6 for identification.)</p> <p>7 BY MR. BURNS:</p> <p>8 Q Is that the report you reviewed?</p> <p>9 A Yes. I recognize this, yeah.</p> <p>10 Q And we've marked that as Exhibit 17.</p> <p>11 Okay.</p> <p>12 MR. BURNS: All right. We have no</p> <p>13 further questions.</p> <p>14 MR. FROST: Okay.</p> <p>15 CROSS-EXAMINATION</p> <p>16 BY MR. FROST:</p> <p>17 Q So, Laura, I apologize. Sitting next to</p> <p>18 you is just going to make this, you know, a little</p> <p>19 more awkward, but I'm going to ask you a couple of</p> <p>20 questions now.</p> <p>21 MR. FROST: Do you have Demonstrative 2,</p> <p>22 as you used it and marked it?</p> <p>23 THE WITNESS: I do.</p> <p>24 BY MR. FROST:</p> <p>25 Q You have -- you have Exhibit 2, I think.</p>	<p style="text-align: right;">Page 240</p> <p>1 this case?</p> <p>2 A No, it doesn't.</p> <p>3 Q What is the best and most complete</p> <p>4 statement of your opinions with the context</p> <p>5 necessary to understand them?</p> <p>6 A Well, that would be my expert report.</p> <p>7 Q And that's the document that was marked</p> <p>8 as Exhibit 1 today?</p> <p>9 A I believe so.</p> <p>10 Q And what is the best, most complete</p> <p>11 summary of your qualifications, knowledge,</p> <p>12 training and experience to render an opinion in</p> <p>13 this case?</p> <p>14 A Well, that would be my curriculum vitae.</p> <p>15 Q And do you recall going through and</p> <p>16 answering many of the questions -- or I guess all</p> <p>17 the questions that are in Demonstrative 2; is that</p> <p>18 correct?</p> <p>19 A Sorry, in this document?</p> <p>20 Q Yeah, you remember going through these?</p> <p>21 A Yeah. Yes.</p> <p>22 Q Do any of these questions and your</p> <p>23 answers to them affect your -- affect your ability</p> <p>24 to render an opinion here?</p> <p>25 A No.</p>
<p style="text-align: right;">Page 239</p> <p>1 A Oh, sorry.</p> <p>2 Q It's Demonstrative 2.</p> <p>3 A It shows you what I know about --</p> <p>4 Q I'm going to hand you what was</p> <p>5 previously marked as Plaintiffs' Demonstrative 2.</p> <p>6 MR. BURNS: Yeah, so we want to enter</p> <p>7 that into the record.</p> <p>8 MR. FROST: That's fine. We can mark</p> <p>9 that -- maybe we could mark it as Plaintiffs'</p> <p>10 Demonstrative 2 --</p> <p>11 MR. BURNS: Yeah. So all I was getting</p> <p>12 at, if you're going to mark a version, we</p> <p>13 should --</p> <p>14 MR. FROST: I'm not going to touch it.</p> <p>15 MR. BURNS: Okay.</p> <p>16 MR. FROST: No, I'm not going to mark it</p> <p>17 up. I just wanted to give it to her.</p> <p>18 MR. BURNS: Go ahead.</p> <p>19 BY MR. FROST:</p> <p>20 Q Do you remember this document from</p> <p>21 earlier today?</p> <p>22 A I do, yes.</p> <p>23 Q Okay. Does this demonstrative</p> <p>24 accurately reflect your qualifications, knowledge,</p> <p>25 training and experience to render an opinion in</p>	<p style="text-align: right;">Page 241</p> <p>1 Q Okay. I'm going to reach over if you</p> <p>2 don't mind.</p> <p>3 Here, sorry.</p> <p>4 Well, I will just show you my copies for</p> <p>5 purposes of what we're doing here. Okay.</p> <p>6 All right. Do you recall being shown</p> <p>7 earlier today various documents marked as</p> <p>8 Exhibit 12, Exhibit 13, and Exhibit 14?</p> <p>9 A Yes.</p> <p>10 Q Do you have those there?</p> <p>11 A Yes.</p> <p>12 Q Okay. Are any of these documents the</p> <p>13 type of documents that a petrologist would</p> <p>14 consider in undertaking a review of the geology</p> <p>15 and petrology of the geological formation?</p> <p>16 A No.</p> <p>17 MR. FROST: That's all the questions we</p> <p>18 have.</p> <p>19 MR. BURNS: Okay. Just a couple</p> <p>20 follow-up.</p> <p>21 REDIRECT EXAMINATION</p> <p>22 BY MR. BURNS:</p> <p>23 Q One, just so it's clear, why don't we</p> <p>24 mark as Exhibit 18 the --</p> <p>25 A The demonstrative?</p>

<p style="text-align: right;">Page 242</p> <p>1 Q -- what I was calling Plaintiffs'</p> <p>2 Demonstrative 2, just so it's in the record.</p> <p>3 A It's now buried in the stratigraphy</p> <p>4 pile.</p> <p>5 MR. FROST: There it is.</p> <p>6 (Webb Exhibit No. 18 was marked</p> <p>7 for identification.)</p> <p>8 BY MR. BURNS:</p> <p>9 Q All right. You can put that over there.</p> <p>10 And finally, Dr. Webb, thank you for</p> <p>11 your time today. I did want to mark off that we</p> <p>12 did cover your report and opinions on Plaintiffs'</p> <p>13 Demo 1.</p> <p>14 MR. BURNS: All right. Thank you very</p> <p>15 much.</p> <p>16 MR. FROST: Great. Thank you, Warren.</p> <p>17 Thank you, Leigh and Amanda.</p> <p>18 THE VIDEOGRAPHER: This ends today's</p> <p>19 deposition.</p> <p>20 We're going off the record at 6:14 p.m.</p> <p>21 (Whereupon, the deposition of</p> <p>22 LAURA WEBB, Ph.D. was concluded</p> <p>23 at 6:14 p.m.)</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 244</p> <p>1 INSTRUCTIONS TO WITNESS</p> <p>2 Please read your deposition over carefully and</p> <p>3 make any necessary corrections. You should state</p> <p>4 the reason in the appropriate space on the errata</p> <p>5 sheet for any corrections that are made.</p> <p>6 After doing so, please sign the errata sheet</p> <p>7 and date it.</p> <p>8 You are signing same subject to the changes</p> <p>9 you have noted on the errata sheet, which will be</p> <p>10 attached to your deposition. It is imperative</p> <p>11 that you return the original errata sheet to the</p> <p>12 deposing attorney within thirty (30) days of</p> <p>13 receipt of the deposition transcript by you. If</p> <p>14 you fail to do so, the deposition transcript may</p> <p>15 be deemed to be accurate and may be used in court.</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 243</p> <p>1 CERTIFICATE OF CERTIFIED SHORTHAND REPORTER</p> <p>2 The undersigned Certified Shorthand Reporter</p> <p>3 does hereby certify:</p> <p>4 That the foregoing proceeding was taken before</p> <p>5 me at the time and place therein set forth, at</p> <p>6 which time the witness was duly sworn; That the</p> <p>7 testimony of the witness and all objections made</p> <p>8 at the time of the examination were recorded</p> <p>9 stenographically by me and were thereafter</p> <p>10 transcribed, said transcript being a true and</p> <p>11 correct copy of my shorthand notes thereof; That</p> <p>12 the dismantling of the original transcript will</p> <p>13 void the reporter's certificate.</p> <p>14 In witness thereof, I have subscribed my name</p> <p>15 this date: March 30, 2019.</p> <p>16</p> <p>17 _____</p> <p>18 LESLIE A. TODD, CSR, RPR</p> <p>19 Certificate No. 5129</p> <p>20</p> <p>21 (The foregoing certification of</p> <p>22 this transcript does not apply to any</p> <p>23 reproduction of the same by any means,</p> <p>24 unless under the direct control and/or</p> <p>25 supervision of the certifying reporter.)</p>	<p style="text-align: right;">Page 245</p> <p>1 -----</p> <p>2 E R R A T A</p> <p>3 -----</p> <p>4 PAGE LINE CHANGE</p> <p>5 _____</p> <p>6 REASON: _____</p> <p>7 _____</p> <p>8 REASON: _____</p> <p>9 _____</p> <p>10 REASON: _____</p> <p>11 _____</p> <p>12 REASON: _____</p> <p>13 _____</p> <p>14 REASON: _____</p> <p>15 _____</p> <p>16 REASON: _____</p> <p>17 _____</p> <p>18 REASON: _____</p> <p>19 _____</p> <p>20 REASON: _____</p> <p>21 _____</p> <p>22 REASON: _____</p> <p>23 _____</p> <p>24 REASON: _____</p> <p>25 _____</p>

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## ACKNOWLEDGMENT OF DEPONENT

I, \_\_\_\_\_, do hereby  
certify that I have read the foregoing pages, and  
that the same is a correct transcription of the  
answers given by me to the questions therein  
propounded, except for the corrections or changes  
in form or substance, if any, noted in the  
attached Errata Sheet.

\_\_\_\_\_  
LAURA WEBB, Ph.D.                      DATE

Subscribed and sworn to  
before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
My commission expires: \_\_\_\_\_

\_\_\_\_\_  
Notary Public

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